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ABSTRACT

This learning package comprises a portion of the National Training and Development Service Urban Management Curriculum Development Project. The six units included in the package focus on understanding, formulating, and implementing public policies. They additionally help to develop conceptual, methodological, and analytic skills essential to students of public administration. The units are concerned with major social problems such as unemployment, poverty, inequality, discrimination, crime, and drug and alcohol addiction. The specific units included in the package are: (1) The Logic of Public Policy Analysis, (2) Policy Problems, (3) Policy Outcomes, (4) Policy Alternatives, (5) Policy Action, and (6) Policy Performance. (MK)

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PUBLIC ADMINISTRATION
PUBLIC POLICY ANALYSIS

UNITS 1-6

Developed by

UNIVERSITY EXTERNAL STUDIES PROGRAM
UNIVERSITY OF PITTSBURGH
William N. Dunn, Principal Developer

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NATIONAL INSTITUTE OF
EDUCATION

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Package X

The staff of the University External Studies Program played a major role in the production, evaluation and development of this learning package. In particular I wish to thank Ms. Jyotsna Vasudev, the curriculum developer for this package, whose expertise and guidance made this project an important learning experience for me. In addition Mr. Michael Sabath, my graduate assistant, made valuable editorial and substantive contributions to the development of the final draft.

William N. Dunn
April, 1977

INTRODUCTION

Public Policy Analysis (PA 812) provides knowledge and skills necessary or understanding, formulating, and implementing public policies. The course also helps to develop conceptual, methodological and analytic skills essential to students pursuing a degree program in Public Administration. It seeks to present and develop a variety of tools which will enable you to understand and analyze strategic or "critical" decision, by which we mean major public choices that affect the regulation, distribution, and redistribution of societal resources, e.g., educational opportunity, medical care, municipal services, and natural resources.

The essential difference between this course and others that you may complete during your program of studies is that Public Policy Analysis focuses on major social problems such as unemployment, poverty, inequality, discrimination, crime, and drug and alcohol addiction. By contrast other courses in the curriculum emphasize the successful performance of a variety of management functions (personnel, finance, budgeting, communications, etc.) which contribute to productivity, efficiency and program effectiveness. Despite their obvious importance these are essentially routine managerial problems that seldom involve major public choices concerning the regulation, distribution, and redistribution of societal resources.

Public Policy Analysis has no particular prerequisites; it is designed for students with widely differing practical experiences and educational backgrounds. Course materials have been written so that their objectives and content may be readily grasped and perhaps even mastered by any student who makes a serious commitment of time and energy to the completion of the course.

The central purposes of the course are simple and straightforward: (1) to acquire an understanding of the essential characteristics of the process of policy formation and implementation in public organizations; and (2) to acquire conceptual, methodological, and analytical skills necessary for making appropriate choices among different policy alterntatives. The accomplishment of these two broad aims is relevant for three audiences at once: public policy practitioners; targets of public policies and programs; and citizens whose tax monies and trust support practitioners, policies, and programs.

The claim that the accomplishment of these aims is relevant to each of these three groups is based on several assumptions that should be made as explicit as possible at the outset. First, it is my firm impression that the study and practice of policy formation--along with public administration in general--is and has been retarded by certain myths, the most important of which is that of "insiders" and "outsiders."* For the university-based social scientist who has chosen a career of teaching and research in public affairs the public policymaker is often regarded as an "outsider," a "practitioner," who is not privy to the kinds of essential theoretical knowledge that is generated within the academic community. By the same token the practitioner, whose business is to formulate and implement policies, likewise often regards the university-based social scientist as an "outsider," an "academic," who is unacquainted with the kinds of practical problems with which public managers most grapple daily throughout their careers. Paradoxically, both groups are partially correct in their assessments of one another. This is precisely why their views may be described as myths, half-truths and distortions which make it possible to rationalize or justify one's own activities as an "insider" while criticizing or dismissing altogether "outsiders" who are believed to be incompetent to partake of privileged activities.

This two-headed myth, found with great frequency in universities and public agencies alike, is responsible for at least two regrettable tendencies in contemporary society. On the one hand universities, including schools of public affairs and administration, seem increasingly powerless to withstand the colonization of academic programs by influential practitioners (including legislators), whose one-sided demands for technically exploitable knowledge threatens to undercut the university's role as social critic and creative problem-solver.* On the other hand, many social scientists within universities, confronted with pressures to become more "useful," "practical" or "applied," have reacted by reinstating the illusion of the political innocence of science, thus reasserting their role as detached scientific observers and eschewing any form of direct involvement in societal problem-solving. The rise of such essentially reactionary notions provides a natural target for "practitioners," who rightly claim that there is little of practical importance being produced by "academies." For their part the "academics" continue to assert, and rightly so, that "practitioners" are ill-equipped by training, experience, and temperament to generate the kinds of theory and research which are a necessary condition both of social criticism and of creative problem-solving.

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*The conceptual imagery is borrowed from an essay by Robert Merton, "Insiders and Outsiders: A Chapter in the Sociology of Knowledge," Varieties of Political Expression in Sociology (Chicago: University of Chicago Press, 1972), pp. 9-47.

These contemporary tendencies contribute in decisive ways to a situation in which little productive dialogue is possible. Under such circumstances it also seems unlikely that there will be more than a few survivors of our contemporary malaise, unless some rather marked changes are made in the way that "insiders" and "outsiders" see themselves and one another. A first step in this direction is to recognize that much of what passes today for informed thinking about public affairs is routine, uncreative and sterile. "Academics" and "practitioners" alike are often captives of their own narrow experiences, which they regularly use as a justification or pretext for claims that their shopworn or their parochial ideas are more "realistic" or "valid" than those of opponents. In short, the myth of "insiders" and "outsiders" provides a rationale to both groups to criticize everyone except themselves.

This learning package proceeds from a conviction that it is possible to generate a productive dialogue between "insiders" and "outsiders," but without losing the essential contributions of either toward the resolution of contemporary policy problems. Unavoidably, this conviction leads to certain difficulties, most important of which is that of placing sufficient emphasis both on technically exploitable knowledge (e.g., cost-benefit analysis) and the development of concepts (e.g., dialectical inquiry) and skills (e.g., value clarification) which make it possible to criticize emerging cultural traditions and political practices, including "policy analysis" itself. That such difficulties will be resolved below is no more likely or desirable than the prospect that "insiders" and "outsiders" will soon join ranks in a common effort at social criticism and societal problem-solving. A dialogue, by definition, implies differences and even conflict.

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*This is not to imply that universities should not, and have not historically, produced technically exploitable knowledge as one of several activities, including the passing on and criticism of cultural traditions and political practices. See J. Habermas, Toward A Rational Society: Student Protest,

COURSE COMPONENTS

There are four primary components of learning in this course: (1) the attached study guide; (2) on-campus workshops; (3) instructor contact; and (4) graded course assignments. Each of these components is explained below.

The Study Guide

Immediately following this Course Guide you will find the Study Guide for PA 812. It is divided into six units, each of which contains various instructional elements which will facilitate your learning throughout the term. These instructional elements are described below.

Key Terms and Concepts. The most important Terms and Concepts used in each unit are presented at the beginning of the unit. You should carefully review these Terms and Concepts before reading the text. When you finish the text you should review these Terms and Concepts before completing the Study Questions and Self-Testing Exercise for each unit.

Learning Objectives. At the beginning of each unit you will also find a list of Learning Objectives. Each objective is stated in behavioral terms so that you know exactly what is expected of you when you have completed each unit. Study these Learning Objectives carefully; it is also a good idea to refer back to these frequently as you read the text.

Text. Each unit contains a written text that presents ideas and information necessary to achieve Learning Objectives and complete various tasks. The first unit is an introduction and it is the foundation for the remainder of units you will complete during the course. Note that each unit contains a list of figures and/or a list of tables which help you to locate sources of data or ideas in the text easily. Each unit also contains an Overview that shows relationships between objectives, tasks, learning resources, and the types of evaluation used. As noted above, each unit includes Key Terms and Concepts and Learning Objectives. All units have several subsections which have titles written in capital letters (e.g. PUBLIC POLICY AND MODERN SOCIETY). At the end of each unit you will find References to works cited in the text, and finally, a set of Self-Testing Exercise, Assignments, and an Answer Key for the Self-Testing Exercise. Each unit is interspersed with study questions which will help you to focus your attention on signficant aspects of the unit.

On-Campus Workshops

It is strongly recommended that you attend each of the three Workshops scheduled during the term. Although you will not be tested or evaluated on lectures or any other information given at these Workshops, you will find that contact with the instructor and his assistant at these sessions will help you to understand more fully the aims and content of the course. Each workshop will involve lectures, class problems and exercises, and extensive group discussion and feedback. The schedule of workshops is provided in your Course Addendum.

Graded Course Assignments

At the end of each module there is a written Assignment to be completed and mailed to me for grading. Assignments are the basis on which my assistant and I will evaluate your learning progress throughout the course. While each Assignment has a different form, they are all designed to evaluate the extent to which you have achieved the Learning Objectives for each module. Each of the six (6) assignments is worth 100 points.

Submitting Assignments. When assignments are completed they should be mailed to me at the address provided in the Course Addendum.

Grading Assignments. Your final grade will be based on an average of the six (6) Assignments submitted throughout the term. Since each assignment is weighted equally, the total score for the course will be computed by adding the scores for all the assignments and dividing by six. This average score will be converted to letter grades according to the following system:

A = 90 points and above
B = 80-89 points
C = 70-79 points
D = 60-69 points
F = below 60 points
S = 75 points and above
US = below 75 points

Since one of my main interests in the course is helping you to develop and improve your knowledge and skills, I will use a bonus system which takes into account the degree to which you have improved during the course. The rule I will follow is this one: you will receive a bonus of two (2) points toward your final grade each time that you improve upon your previous mark by at least five (5) points. This means that you may earn as much as ten (10)

COURSE CONTENT

This course contains six units each of which has several subsections. When used as a regular course these units should be completed in numerical sequence. At the same time, units can be used independently in special work settings. Unit 1: The Logic of Public Policy Analysis establishes the framework for each of the succeeding five units in the course. It is particularly important that Unit 1 be studied carefully and thoroughly, since it introduces key terms and concepts, definitions, and relationships which provide the foundation for the remainder of the activities you will complete in the course. Unit 1 outlines a logic of public policy analysis--i.e., a set of assumptions, principles, and rules that shape the ways we experience and think about public policies.

An outline of each of the six units, together with their respective subsections is provided below.

1. THE LOGIC OF PUBLIC POLICY ANALYSIS

   Introduction--Public Policy and Modern Society--A Simple Model of Rationale Choice--Policy Analysis and Rationality--The Process of Policy Formation

2. POLICY PROBLEMS

   Introduction--The Nature of Policy Problems--Popular and Scientific Myths About Policy Problems--The Structure of Policy Problems--Value Clarification in Policy Analysis

3. POLICY OUTCOMES

   Introduction--The Role of Monitoring in Policy Analysis--Measuring Policy Outcomes and Actions--Displaying and Interpreting Data--Approaches to Monitoring--Some Fallacies of Measurement

4. POLICY ALTERNATIVES

   Introduction--The Nature of Forecasting--Approaches to Forecasting--Forecasting: Strengths and Limitations

10

extra points on your final average grade by demonstrating continuous improvement on the module assignments. For example, consider the following hypothetical student who earned eight (8) extra points during the course. The student earned 65 points on the first assignment. Since she scored 70 points on Assignment 2, she earned 2 bonus points (listed across from Assignment 1, below). You will also note that this student earned 80 points on Assignment 3 and only 75 points on Assignment 4. She was awarded no bonus points, and no bonus points were subtracted.

Assignment	Grade	Bonus
1	65	1
2	70	2
3	80	2
4	75	0
5	83	2
6	88	2
Average --	77.0	8.0

Course Grade = 77.0 + 8.0 = 85.0 (B)

Feedback on Assignments. A copy of each written assignment will be returned to you with a grade and comments on your answers. Please allow from 10-15 days between the time you post your assignment and your receipt of the graded copy. If you have any questions on written assignments, or if you wish to make an appointment with me you can reach me by phone at the number listed in your Course Addendum.

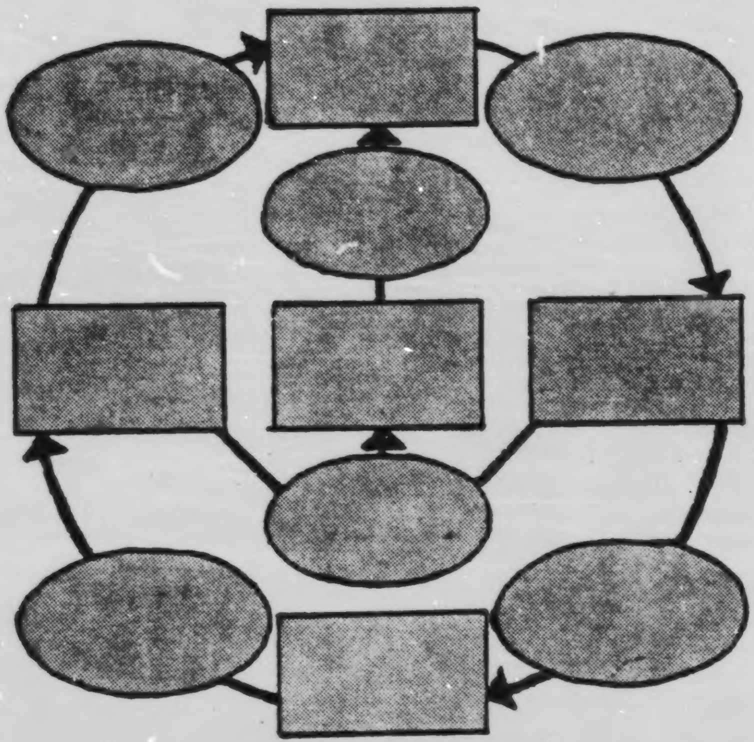
5. POLICY ACTIONS

Introduction--The Nature of Policy Recommendation--Components of Policy Recommendation--Systematic Analysis: Strengths and Limitations

6. POLICY PERFORMANCE

Introduction--Evaluation and Policy Performance--Approaches to Evaluation--Information Utilization and Policy Development

UNIT 1
THE LOGIC OF PUBLIC POLICY ANALYSIS



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INTRODUCTION

The study of policymaking in modern societies presents complex, demanding, and seemingly insoluble problems for policy analysts both inside and outside of government. For this reason it is desirable and even necessary that we use conceptual frameworks which simplify, formalize, and clarify our subject matter. The conceptual framework introduced in this unit seeks, first of all, to simplify major elements of the process of public policy formation. Paradoxically, however, the ultimate aim of this simplifying framework is to discern and appreciate the many-sided complexities of policymaking in what we will later describe as post-industrial policy environments. In other words the framework, through purposeful simplification, makes it possible to discover and more fully understand some of the ways that this multidimensional complexity is organized and, hence, intelligible to the human mind.

The skeleton of our conceptual framework has been reproduced on the cover page of this unit. The empty rectangles and ovals, together with their connecting arrows, represent basic elements in a framework for analyzing public policies. In this and succeeding units we will apply and elaborate upon this conceptual framework. As you progress through these units you will develop skills in identifying, defining, and applying each of the framework's interdependent elements: policy-informational components (rectangles); policy-analytic procedures (ovals); and policy-informational transformations (arrows). In this unit we will begin by considering: (1) the nature of public policy in modern society; (2) major characteristics of a simple model of rational choice; (3) the relationships between policy analysis and different conceptions of rationality; and, finally, (4) basic elements in the process of public policy formation.

LEARNING OBJECTIVES

After completing this module you should be able to:

1. Explain and apply key concepts that constitute the "language" of policy analysis.
2. Compare and contrast policies in terms of their authoritativeness, scope, and place within policy structures.
3. Distinguish between policies according to their degree of strategic or critical importance, their relation to questions of public accountability, and their relative autonomy.
4. Identify the characteristics, consequences, and implications of post-industrial policy environments.
5. Identify the assumptions of models of rational choice and their limitations.
6. Compare and contrast dialectical, descriptive, prescriptive and authoritarian modes of rational choice.
7. Distinguish major types of rationality according to the criteria by which decisions are assessed.
8. Compare and contrast intellectual, organizational, and sociopolitical aspects of the process of policy formation.
9. Distinguish methods, experience, and authority as bases for contending approaches to policy formation.
10. Define policy-informational components, policy-analytic procedures, and policy-informational transformations, and apply them to a policy of your choice.

KEY TERMS AND CONCEPTS

- Public Policy
- Issue-Area
- Policy Issue
- Policy Problem
- Policy Structure
- Policy System
- Policy Environment
- Policy Actors
- Postindustrial Policy Environment
- Rationality
- Multirationality
- Policy Analysis
- Policy Process
- Rational Choice
- Disjointed Incrementalism
- Comprehensive Rationality
- Policy-Informational Components
- Policy-Analytic Procedures
- Policy-Informational Transformations
- Policy Formulation
- Policy Implementation

OVERVIEW

Objective	Task	Resource	Evaluation
1. Explain and apply key concepts that constitute the "language" of policy analysis.	Study Questions 1,3,9 Test Question 9	Unit Narrative	Self
2. Compare and contrast policies in terms of their authoritativeness, scope, and place within policy structures.	Study Questions 2,4,5 Test Questions 1,3,4,6,16	Unit Narrative	Self
3. Distinguish between policies according to their degree of strategic or critical importance, their relation to questions of public accountability, and their relative autonomy.	Study Questions 5,11 Test Questions 2,3,4,5,6	Unit Narrative	Self
4. Identify the characteristics, consequences, and implications of post-industrial policy environments.	Study Questions 6,7,8 Test Questions 7,8	Unit Narrative	Self
5. Identify the assumptions of models of rational choice and their limitations.	Study Questions 9,10,11,12,13 14,15,16 Test Questions 10,11,12,13,14, 15 Unit Assignments	Unit Narrative 19	Self

Objective	Task	Resource	Evaluation
6. Compare and contrast dialectical, descriptive, prescriptive and authoritarian modes of rational choice in terms of their reliance on methods, experience, and authority.	Study Questions 19,20,23 Unit Assignments	Unit Narrative	Self and Instructor
7. Distinguish the major types of rationality according to the criteria by which decisions are assessed.	Study Questions 24,25 Test Question 10 Unit Assignments	Unit Narrative	Self and Instructor
8. Compare and contrast intellectual and social aspects of the process of policy information.	Study Questions 8, 30,31 Test Question 15	Unit Narrative	Self
9. Discuss methods, experience, and authority as bases for "disjointed incrementalism" and "comprehensive rationality" as two contending approaches to policy information.	Study Questions 21,22 Test Questions 18,19,20 Unit Assignments	Unit Narrative	Self and Instructor
10. Define policy-informational components, policy-analytic procedures, and policy-informational transformations and apply them to processes of policy formation.	Study Questions 17,26,27,28,29 Test Question 17 Unit Assignments	Unit Narrative Self	Self and Instructor

PUBLIC POLICY IN MODERN SOCIETY

Every day there are literally thousands of policies analyzed, formulated and implemented in the United States and other modern societies. Some of these policies are private; some are public. Some affect you directly; others indirectly. But there are few policies so restricted in scope that they do not affect in some way you, your family, and your local community. Consider, for example, the large number of public and private organizations which make and influence educational policies which affect learning opportunities available to university students.

U.S. Congress
U.S. Department of Health, Education and Welfare
U.S. Office of Education
U.S. Department of Housing and Urban Development
U.S. Veteran's Administration
U.S. National Science Foundation
Commonwealth of Pennsylvania
Pennsylvania Department of Education
Allegheny County Commissioners
ALCOA Foundation
Hillman Foundation
Mellon Foundation
Rockefeller Foundation
Ford Foundation

The above sample may be expanded dramatically if we include other levels of education, other regions in the country, and other areas of policy, such as crime, drug addiction, taxation, employment, and social security, to name only a few. Even when we narrow our focus to those policies developed by public organizations we are still left with a very large and complex problem, given the structure of government and policy formation in modern societies such as the United States:

> The structure of the United States government is chaotic. In addition to the federal government and the 50 states, there are something like 18,000 general-purpose municipalities, slightly fewer general-purpose townships, more than 3,000 counties, and so many special-purpose governments that no one can claim even to

> have counted them accurately. At an educated guess, there are at present some 92,000 tax-levying governments in the country. A given citizen may be buried under a whole pyramid of governments (Grodzins, 1966:7).

The study of policy in modern societies is therefore complex and demanding. Nevertheless, we can simplify our task at the outset by considering several important definitions, ones which help us to make some useful distinctions. As noted above, not all policies are public ones. A public policy is an authoritative guide for carrying out governmental actions in national, state, regional, and municipal jurisdictions. As compared with private policies, public policies are backed by the coercive force of public law, which means that legislative enactments and administrative regulations may be enforced by the police and courts. Public policies also derive legitimacy from substantial (but always less than complete) support among the general populace. Further, public policies affect all citizens within a given jurisdiction. None of these characteristics applies to private policies--for example, a large steel company's policy to relocate its facilities in another state--because such policies lack authority, coercive force, legitimacy, and scope of application in a given jurisdiction or territory. This is not to say that private policies may not have an important or even decisive impact on public problems; rather, private policies are simply much more restricted in scope than public ones, even though the distinction between "public" and "private" is increasingly blurred as a consequence of the growing interdependence of societies.

Another way of making distinctions among public policies is to define and specify the contexts in which they arise. Public policies may be grouped according to issue-areas, which are the particular functional contexts in which public actions are carried out. These functional contexts include national defense, foreign aid, health, education, welfare, public safety, transportation, revenue and taxation, social security, employment, economic development, and the environment. In each of these functional contexts a large number of policy issues is generated every year. A policy issue is an actual or potential course of public action about which there is significant disagreement or conflict among important groups within a community. Policy issues are always associated with particular definitions of a policy problem held by different segments of a community. A policy problem, to adapt a definition from political scientist Charles Jones (Jones, 1970:20), is a human value or need, self-identified or defined by others, which may be satisfied through public action such that persons beyond those immediately concerned perceive themselves to be affected and engage in political action. Policy problems are therefore more specific than policy issues.

A policy issue such as unemployment involves significant disagreement among different groups: employees associations, corporations, labor unions, political parties, minority groups. Yet, there may be several different definitions of policy problems associated with the issue of unemployment. For the National Association of Manufacturers the issue of unemployment may be linked to a definition of a policy problem which focuses on the possible effects of reduced corporate income taxes on the expansion of investment, production, and jobs. For labor unions such as the AFL-CIO the issue of unemployment may be connected with an altogether different definition of the problem, one which emphasizes the possible effects of changes in corporate employment policies on maintaining existing levels of employment and job security. Hence, the same policy issue often results in multiple and fundamentally different definitions of a policy problem and, therefore, of the range of appropriate courses of public action which may alleviate or resolve that problem. In other words, policy problems are dependent on the perceptions and values of different groups; while all groups may agree on the importance of an issue, they may differ radically in their perceptions of the problems connected with that issue.

One final set of definitions will also help us to distinguish between different kinds of public policies. Here we are concerned with the relative importance of public policies--i.e., some policies are more important than others, depending on their position in a given policy structure. Policy structures are hierarchically ordered levels of public action, ranging from major, secondary, and functional policies to standard operating procedures and rules (Figure 1-1). A major policy deals with the overall goals of government, a public organization, or set of organizations; it may involve an assessment of long-term objectives and alternative societal futures, as well as guidelines for planning, coordinating, organizing, and evaluating discrete policies which are secondary or functional in nature. Major policies include codes of ethics for public employees and decisions to reorganize the types of activities performed by an agency (e.g., to combine health, education, welfare, and environmental protection in one agency). Secondary policies include decisions to redefine target areas or client groups, e.g., by increasing the average annual income level that qualifies families for public assistance. Functional policies, by contrast, involve decisions about alternative approaches to budgeting and finance (e.g., zero-based budgeting), public relations (e.g., programs to advertise the availability of legal services), personnel (e.g., new forms of testing for entry into the public service), and research and development (e.g., the development of management information systems). Minor policies typically involve decisions about the maintenance of public facilities, while standard operating procedures and rules govern agency procedures (e.g., inventory control) and employee behavior (e.g., vacations, overtime, use of agency automobiles).

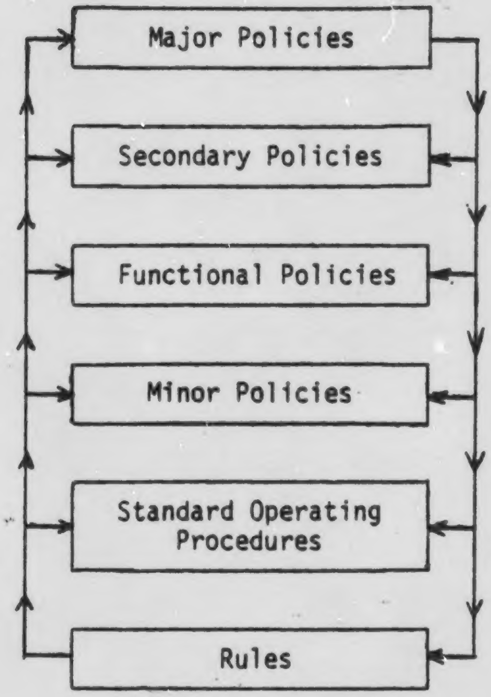
Major Policies
Secondary Policies
Functional Policies
Minor Policies
Standard Operating Procedures
Rules

FIGURE 1-1
Organizational Policy Structure

SOURCE: Adapted from Hodgetts and Wortman (1975:6).

In examining any policy structure several considerations must be kept in mind. First, each level of policy is dependent on the others, such that changes in a major policy are likely to affect other levels, including standard operating procedures and rules. Second, relationships among levels may differ according to the kinds of issues and problems under consideration. Some major policies may not be implementable at lower levels. Consider, for example, the familiar case of the prohibition of alcoholic beverages in the United States in the 1930's. Third, minor policies, standard operating procedures, and rules may affect major policies--e.g., in those cases where changes in rules governing employee overtime result in employee demands for union representation. Fourth, the scope and degree of involvement in making and influencing policies at each level may differ from one organization to another. In a relatively small program with less than 30 employees and a small clientele there may be a great deal of employee and citizien participation in making policies at each level; a large program with several thousand employees is likely to be much less participative. Finally, as we proceed from the minor and functional to the secondary and major level, public organizations have less freedom to develop policies autonomously. Questions of public accountability therefore become more important as we proceed upward in the hierarchy. The complexity and interdependence of policy issues make it unlikely that a department or agency can act alone in developing policies at the major, secondary, functional and even minor level. One important consequence of this is that precisely those policies which are most "critical" or "strategic" in importance--i.e., those at the top of a policy structure--are also the most difficult to formulate and implement.

So far we have not explicitly considered some of the possible interrelationships among elements of public policy defined above. Here it is useful to introduce a new concept, which is that of a policy system. A policy system is an interrelated set of elements which together govern the ways in which policy problems are acted upon by public organizations. Above we noted that in any given issue-area (e.g., health) there are a variety of policy issues (e.g., medical care for the aged, the maintenance of standards in nursing homes, alcoholism and drug treatment). Each issue may result in multiple policy problems (e.g., alcoholism and drug addiction may be defined as a medical problem, a psychological problem, a social problem, or an economic problem), depending on which segment of a community is defining the problem in relation to given values and needs. The definition of a policy problem, therefore, depends on the involvement of particular policy actors--i.e., persons or groups who exert some degree of influence on the identification of problems in accordance with given needs or values, whether these are their own or those of some other group. Policy actors--e.g., citizens' groups, labor unions, political parties, lobbies, government bureaus--respond in markedly different ways to the same set of events in a policy environment. A policy environment is the specific context in which events (e.g., rising alcoholism and drug abuse) surrounding a particular issue occur. Public policies, which we have already defined above, assume different forms as a result of the involvement of different policy actors in various policy environments. Relationships between these three elements of a policy system are illustrated below in Figure 1-2.

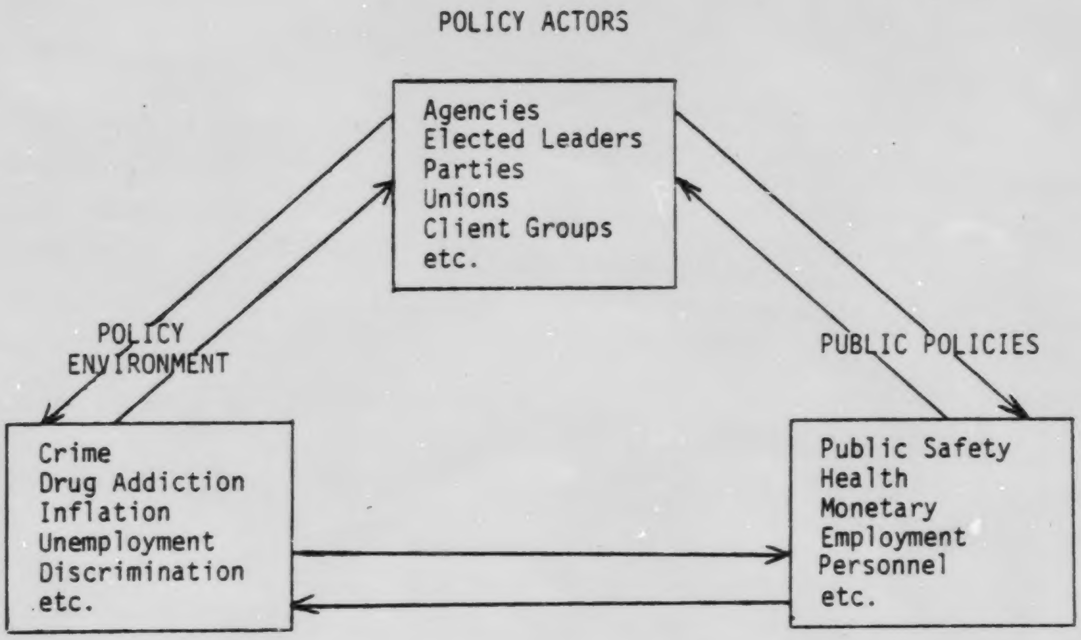
POLICY ACTORS
Agencies
Elected Leaders
Parties
Unions
Client Groups
etc.
POLICY ENVIRONMENT
PUBLIC POLICIES
Crime
Drug Addiction
Inflation
Unemployment
Discrimination
etc.
Public Safety
Health
Monetary
Employment
Personnel
etc.

FIGURE 1-2

Elements Of A Policy System

SOURCE: Adapted from Dye (1975:6) and Coplin (1975:2).

In any policy system there are a number of possible relationships between these three elements. For example, acts of racial and sexual discrimination are important events in the policy environment of public agencies in the United States. Equal Employment Opportunity-Affirmative Action policies of federal, state, and municipal governments are designed to curb racial and sexual discrimination in hiring, promotion, and wages. These policies affect and are affected by events (discriminatory acts) in the policy environment. Such events also affect policy actors (e.g., the U.S. Civil Service Commission, the U.S. Department of Health, Education, and Welfare, the National Association for the Advancement of Colored People), who define such events in different ways, depending upon the amount of information available and its interpretation according to particular values and needs. There are different definitions of the policy problem--e.g., discrimination is defined as a problem of racist attitudes of employers, but also as a problem of inadequate educational opportunities for minorities. These competing definitions then result in different kinds of policy recommendations to resolve the problem. Whatever policy is adopted will result in different levels of satisfaction and support among different policy actors. In short, only by analyzing the relationships between the policy environment, policy actors, and public policies can we begin to understand the different ways that issues and problems are defined and acted upon by public organizations. Table 1-1 illustrates some of the possible relationships between the three elements of a policy system and the definition of policy issues and problems.

By now it should be clear that the study of public policy in modern societies is highly complex. It is also evident that the study of public policy becomes increasingly difficult as changes occur in the nature of policy environments. In the late twentieth century, for example, a series of rapid changes have created what we might call postindustrial policy environment--i.e., those settings in North America, Europe, Oceania, and Japan where the number, complexity, and critical importance of policy problems are growing at an alarming and perhaps uncontrollable rate. Indeed, policy scientist Yehezkel Dror has stated this dilemma in the form

TABLE 1-1

Relationships Of Policy Issues And Problems To Elements Of Policy Systems

Policy Environment	Policy Actor	Policy Issue	Policy Problem	Public Policy
Rising Prices	Corporations	Inflation	Government Spending	Fiscal and Monetary
	Labor Unions	Inflation	Corporate Profits	Taxation and Revenue
Rising Rates of Homicide, Rape, Armed Robbery	Federal Bureau of Investigation	Crime	Detection and Law Enforcement	Special Training Programs
	Urban Poor	Crime	Urban Squalor	Urban Aid
	National Institute of Mental Health	Crime	Recidivism	Rehabilitation Programs
Rising Rates of Alcoholism and Drug Addiction	Corporations	Alcohol and Drug Abuse	Employee Education	Industrial Alcoholism Programs
	Federal Bureau of Investigation	Alcohol and Drug Abuse	Detection and Law Enforcement	Special Training Programs
	National Institute of Alcoholism and Alcohol Abuse	Alcohol and Drug Abuse	Knowledge of Causes of Alcoholism	Research and Development

X.1.14

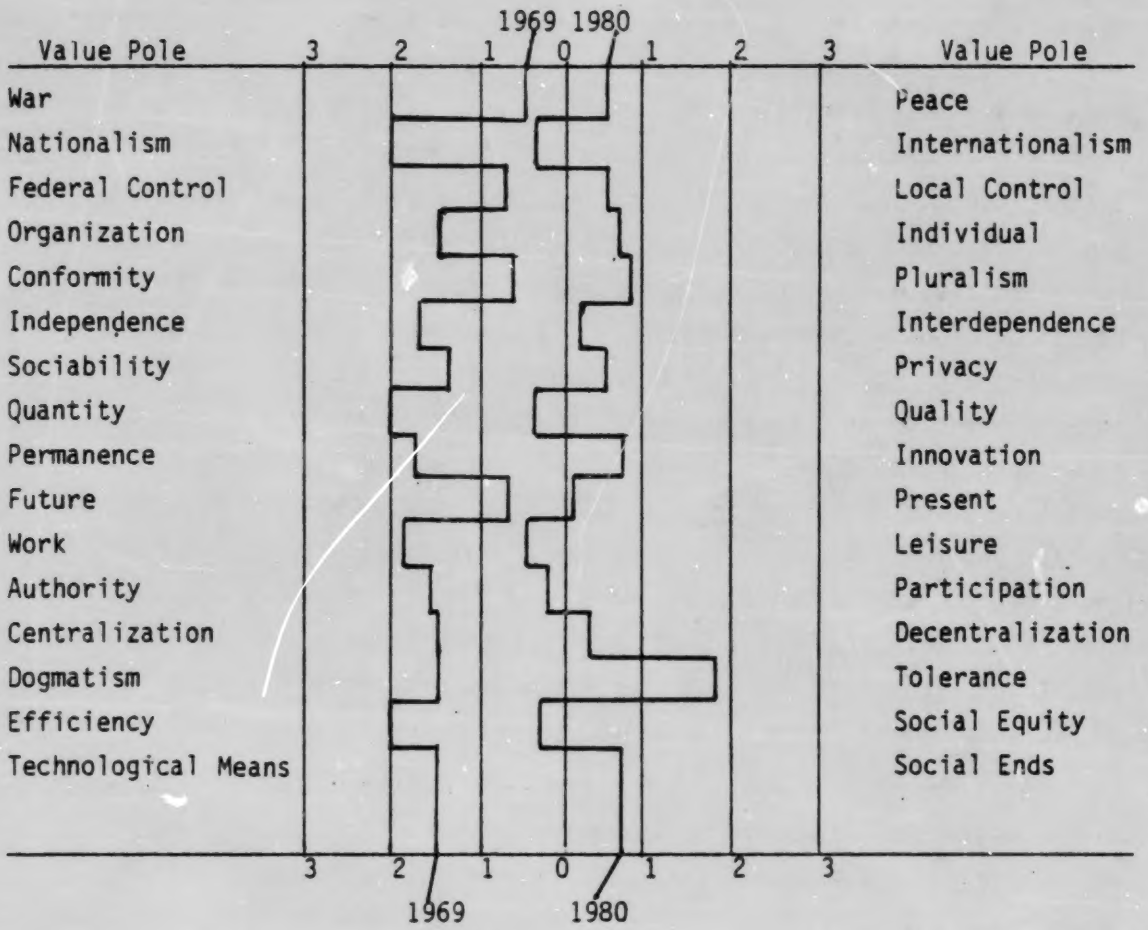

FIGURE 1-3

Projected Changes In Value Profiles Of Americans, 1969-1980

SOURCE: Adapted from Hodgetts and Wortman (1975:28).

Note: This figure shows that the strength of commitment to certain pairs of opposing values (e.g., war versus peace) is likely to change between 1969 and 1980. Points to the left and right of the zero-point indicate the degree of commitment to polar values along a continuum. For example, the continuum "not-peace" shows a commitment of .5 to "war" in 1969; the projected commitment in 1980 has changed, with a .5 commitment to "peace." The zero-point should be interpreted as ambivalence.

of a law: "While the difficulties and dangers of problems tend to increase at a geometric rate, the number of persons qualified to deal with these problems tends to increase at an arithmetic rate" (Dror, 1971:2).

There are several major characteristics of postindustrial policy environments which contribute both to the creation of the above problems, and also to their resolution. First, there has been a dramatic increase in the mutual dependence of public and private activities, both domestically and in international society. Second, a large number of unanticipated social problems--e.g., pollution and ecological degradation, mental illness, urban squalor, crime, drug and alcohol addiction--have accompanied policies of rapid and unlimited economic growth, industrialization and urbanization. Third, there has been a steady increase in the average education of blue as well as white collar employees, one result of which is an increase in the number and influence of policy actors. Related to this is a rapid shift in the proportion of service workers, as compared to workers in industry and manufacturing, and a resultant change in the social value attached to work itself. Increasingly, workers seek satisfaction and fulfillment on the job, as well as through traditional family and community channels. Changes in social values are also evident in areas which were previously dominated by conservative and slowly changing traditions. Figure 1-3 illustrates projected changes in the value profiles of Americans in the period 1969-1980.

Postindustrial policy environments have also contributed to changes in the self-perceptions and roles of practicing public managers and policymakers. For example, the systematic analysis of public policy has acquired a measure of importance and value to society that was unknown in past periods. There has been a gradual increase in the involvement and influence of professional managers and policy analysts, together with growing societal expectations that experts with specialized technical knowledge will be able to resolve major social problems. Specialized methods of forecasting, evaluation, coordination, and control have been extended to formerly non-technical areas of politics, culture, and social relations. In short, at the very moment when policy problems are increasing geometrically, vigorous efforts are being made to use technical knowledge to subject postindustrial policy environments to more rational modes of planning, control, and overall societal direction. As we shall see, such efforts raise fundamental ethical questions about the meaning of "rational" public action.

STUDY QUESTIONS

Answer each of the questions that follow:

1. Define the following terms:

public policy:

issue-area:

policy issue:

policy problem:

policy structure:

policy actors:

policy environment:

2. Compare and contrast public policies with those formulated and applied in the private sector.

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3. Distinguish between policy issues and policy problems, providing examples of each.

4. Provide one illustration each of the policies formulated at each of the six levels within policy structures.

5. How can the analysis of levels within policy structures help to distinguish between "strategic" or "critical" decisions, on the one hand, and "routine" decisions on the other?

6. Which of the specified conditions associated with post-industrial policy environments create new problems for policymakers? Which of these conditions are a response to policy problems?

7. Reconsider the conditions of postindustrial policy environments. Is the distinction between conditions which create problems and those which are a response to problems a clear one? Which "responses" might actually contribute to the creation of problems?

A SIMPLE MODEL OF RATIONAL CHOICE

The study of public policy is essentially the study of rational choice. When we inquire into the nature and consequences of a policy we seek to understand the reasons why particular courses of action are chosen. When a policy achieves its objectives by resolving such problems as inflation, unemployment, or inadequate standards of living we usually think of it as "rational," meaning that the appropriate course of action has been chosen to alleviate the problem. By contrast, a policy which fails to achieve such objectives--either because the courses of action chosen were the wrong ones, or because the actions created more problems than they resolved--is normally thought to be "irrational." There is also a special category of actions which are neither rational nor irrational, since there are no specific reasons or choices which guided the actions. The most appropriate term to describe this category is "non-rational;" a large number of actions occur every day out of habit, custom, routine, or a simple lack of awareness of relationships between ends and means.

Habitual, customary, routine, or unconscious actions are inconsistent with any commonly understood meaning of "policy." This is because policy has the common meaning of conscious and goal-directed behavior. While it is difficult to imagine a policy based on no reasons and no choices, the idea of "non-rational" policymaking does raise a number of important problems. When complex organizations continuously make many similar choices, patterns of action may become highly routine. In these circumstances we may wish to exclude such choices from the category of "policy," reserving the term for conscious choices which involve strategic or "critical" decisions (Selznick, 1957). In other words, the conscious and goal-directed nature of policy would appear to exclude those routine decisions that students of public administration typically group under headings of personnel, accounting, training, and research and development. The essential feature of such decisions is not their functional character (e.g., personnel), but the degree to which they are routinized. Reasoned choices (rationality) may no longer be necessary. "This situation typically confronts organizations producing over and over goods or services of a reasonably well understood kind. Such organizations become highly rationalized, and we call them bureaucracies" (Thompson, 1976:64).

A little reflection should make it clear that we are dealing with a paradox: the more "rationalized" an organization becomes, the less "rational" it is likely to be. Hence, actions which could originally be described as conscious and goal-directed may eventually be described as habitual, routine, and unconscious. Bureaucratic organizations may displace their original goals and become so highly "rationalized" that policymaking in the sense of consciously choosing courses of action to resolve problems is non-existent. Many public organizations designed to serve the public might well be described today as organizations which have lost much of their capacity to engage in rational choice. Therefore, "non-rational" is a more appropriate term for policy processes in many modern public bureaucracies.

Distinctions between rationality, irrationality, and non-rationality suggest that the essence of policy is reasoned choice. When individuals choose particular courses of action they engage in several interrelated components of reasoning: (1) the definition of a problem requiring action; (2) the analysis of alternative courses of action available, including predictions about their probable consequences; and (3) the choice of those alternative courses of action which will result in the most highly valued or preferred consequences. An individual who is making a rational choice typically reasons as follows: "The first available course of action leads to a particular result. The second available alternative leads to another result. The first result is more valuable than the second. Therefore the first course of action should be chosen."

If we designate courses of action as A (Alternatives) and results as O (Outcomes), the problem of choice can be diagrammed as follows:

$$\begin{gathered} A_1 = O_1 \\ A_2 = O_2 \\ O_1 > O_2 \\ \therefore \text{ choose } A_1 \end{gathered}$$

FIGURE 1-4

A Simple Model of Choice

The above symbols state that A_1 will result in O_1, and A_2 will result in O_2. Further, O_1 is greater than (>) O_2 on some scale values. Therefore ($\therefore$) choose A_1.

This simple process of reasoning includes all the essential elements of rational choice. The first decision premise states that A_1 will result in O_1, while the second states that A_2 will result in O_2. These are factual premises, which means that they can be shown to be true or false on the basis of factual knowledge gained by describing or predicting relationships between alternatives and outcomes. The third decision premise, however, is based on human values. This value premise states that O_1 is preferable to O_2 on some scale of values--it cannot be proved right or wrong by factual descriptions or predictions. It is an assertion about what is good or right for some individual, group, or humankind in general. All rational choices contain both factual and value premises.

The above illustration is one of the simplest possible models (i.e., abstract representatives or pictures) of rational choice. Simple models have the advantage of clearly pointing out important elements of a problem; their weakness is that they may distort the complexity of problems. Consider, for example, the following assumptions of the simple model of choice described above (Zeckhauser and Schaefer, 1968:28):

1. The choice must be confined to one individual. If choices involve or affect more than one individual, then it is likely that there will be different and possibly conflicting sets of factual and value premises.

2. The results of a course of action must be known with certainty. In complex situations of choice, however, outcomes are seldom known with certainty because all individuals involved in the choice do not possess full information necessary to establish factual and value premises.

3. Results of a course of action must occur immediately. Given conflicting sets of factual and value premises, together with insufficient information and uncertainty, results are often known only as they emerge during the course of action.

Imagine how our simple model of choice involves the policy issue of whether or not to adopt a minimum wage policy for unskilled workers. Note that the policy problem is defined here as one of wages--

it might just as well be defined as one of education or family environment. Suppose we assume that there will be high compliance with any minimum wage legislation passed by Congress. We might already have excellent information on the existing state of affairs, which might be one where minimum wage laws do not cover unskilled laborers. On the basis of this information we conclude that maintaining the status quo (no minimum wage laws) will result in an annual average income of $3,000 among unskilled laborers. We might also predict that a minimum wage of $2.50 per hour would result in an annual average income of $4,500 among unskilled workers who would be affected by the proposed policy. Here our predictions based on the assumption that employers will comply with the policy by raising wages to the minimum $2.50 per hour. Factual and value premises could again be simply outlined:

$A_1 = O_1$ ($3,000 annual income)

$A_2 = O_2$ ($4,500 annual income)

$O_2 > O_1$

$\therefore$ choose A_2

FIGURE 1-5

A Simple Model of Choice Applied to the Problem of Minimum Wages

The above illustration fails to satisfy one or more of the three requirements of rational choice outlined above. Many different individuals and groups are involved in the choice of the second alternative, including employers, who may decide to reduce their complement of unskilled laborers in order to maintain existing labor costs under a minimum wage (alternatively, employers may install machines with a higher long-term return or investment, or hire students, who are not covered by the legislation). In effect, there is not sufficient information on the probable results of the policy, both because the plurality of policy actors is likely to alter the original factual and value premises, and because there is no direct past experience with the policy. Without past experience there is no firm basis for predicting results; we cannot construct factual premises that relate alternatives to outcomes in the absence of identical or highly similar actions taken in the past. Even if there were full knowledge of probable consequences, conditions may change in the future. In summary, one or more of the assumptions required in our simple model of choice is not justified.

Suppose that a more thorough effort had been made to gather all relevant information on the policy issue of minimum wages. In addition to our original alternatives of minimum wage legislation and the maintenance of the status quo we might have identified manpower training programs as a third course of action, reasoning that the policy problem is not low wages per se but an absence of skills necessary to qualify workers for higher paying jobs. We might have predicted in advance that three sets of results would follow each course of action. The first course of action (the status quo) would result in an annual average income of $3,000 among unskilled workers who number 12,000. The second alternative (minimum wages) would result in an annual average income of $4,500, but depress the number of employed workers in the unskilled category to 9,000. The third alternative (manpower training) would result in an annual average income of $4,000, but increase the number of employed workers in the unskilled and newly unskilled categories to a new level of 15,000.

Each of the alternatives would have important consequences for the political fortunes of Congressmen. Maintaining the status quo would result in a probable loss of 50 party seats in highly contested districts where labor and welfare rights organizations are powerful; minimum wage legislation would result in no electoral changes; manpower training policies would result in a net gain of 10 party seats in districts dominated by opposition party incumbents. Our simple model of choice now becomes considerably more complex (Figure 1-6).

$A_1 = O_1(\$3{,}000 \text{ annual income}) + O_2(12{,}000 \text{ jobs}) + O_3(50 \text{ party seats lost})$

$A_2 = O_4(\$4{,}500 \text{ annual income}) + O_5(9{,}000 \text{ jobs}) + O_6(\text{no change in party seats})$

$A_3 = O_7(\$4{,}000 \text{ annual income}) + O_8(15{,}000 \text{ jobs}) + O_9(10 \text{ party seats won})$

$O_4 > O_7 > O_1$
$O_8 > O_2 > O_5$
$O_9 > O_6 > O_3$

$\therefore$ choose A_3

FIGURE 1-6
A Complex Model of Choice

Note that the third alternative is preferable to the other courses of action on all desired outcomes except one (A_2 is preferable to A_3, but only on grounds of income). This situation of choice is described as one in which one alternative is "dominant." In the left side of Table 1-2 below the third alternative dominates the first and the second, because it is preferred on all outcomes save one. In actual situations of choice, however, there are problems for which no one alternative is dominant. This situation is described on the right side of Table 1-2.

TABLE 1-2

Rankings Of Outcomes
By Alternatives

	Outcome Ranking I			Outcome Ranking II		
Alternative	Income	Jobs	Elections	Income	Jobs	Elections
A_1	3rd	2nd	3rd	3rd	1st	2nd
A_2	1st	3rd	2nd	2nd	3rd	1st
A_3	2nd	1st	1st	1st	2nd	3rd

A situation of choice in which alternatives can be clearly ordered according to preferred outcomes is called an ordinal-utility ranking. The main characteristic of such rankings is that they are transitive: if alternative A_1 is preferable to alternative A_2 in the paired comparison $[A_1,A_2]$, and alternative A_2 is preferable to alternative A_3 in the paired comparison $[A_2,A_3]$, then alternative A_1 is preferable to alternative A_3 in the paired comparison $[A_1,A_3]$. An ordinal ranking can be easily constructed by assigning a number to each alternative, such that if A_1 is preferred to A_3, A_1 is assigned a higher number. The person making a choice maximizes utility (value) by selecting that alternative with the highest number.

If all public policy issues could be analyzed in terms of ordinal-utility rankings, most policy problems could be easily solved. Regrettably, this is not the case:

> Difficult choice problems in which attribute rankings conflict lie at the core of the decisions that must be made by public policy makers. These difficulties may arise because their decisions affect many individuals. Though policy A might be better for one group in our society, policy B might be better for another. If time is a crucial element we may find for example that policy B will be better twenty years from today. In a third context, policy A might be superior if some uncertain events turn out favorably, but policy B might be a better hedge against disaster (Zeckhauser and Shaefer, 1968:30).

STUDY QUESTIONS

8. Define the following terms:

rationality:

irrationality:

non-rationality:

rationalization:

9. Provide examples of public actions which, given the nature of large public bureaucracies, may not be based on rational choice.

10. A large number of routine decisions (e.g., in areas of accounting, personnel, training, research and development) might be excluded from any definition of policymaking, since these decisions are neither conscious nor goal-directed. Recalling that the various levels within policy structures are interdependent, under what conditions would it be appropriate to include these decisions as part of any definition of policymaking?

11. Why might the term "non-rational" be appropriate for describing a large number of actions undertaken within modern public bureaucracies?

12. What are the three basic components of reasoning present in any situation of rational choice?

13. What are the key assumptions which underlie simple models of rational choice?

14. Consider an important policy issue such as the control of inflation. Provide examples of factual and value premises associated with at least two different approaches to defining the problem of inflation.

15. What does it mean to say that the main characteristic of an ordinal utility ranking is transitivity?

POLICY ANALYSIS AND RATIONALITY

Despite the difficulties of applying simple models of choice to complex policy problems, it is still tempting to believe that a host of contemporary problems might be solved by collecting more and better information. For example, cannot problems of crime, drug and alcohol addiction, social welfare, municipal services, and governmental finance be resolved by better calculations of the costs and benefits of different policies and programs? Is it not possible that more sophisticated methods for analyzing alternatives will produce at least marginal gains in the rationality of many public policies? Does not the impressive growth of computerized information systems promise the kinds of high quality information needed for better policymaking? In other words, cannot policymaking become more scientific?

In principle, methods of policy analysis can improve policymaking in almost any contemporary issue area. As we have seen, however, policy systems with multiple actors and complex policy environments promote conflicting sets of value and factual premises, which is the rule, rather than the exception. Human values influence every element of policymaking, from the identification of policy problems to the implementation of policies themselves. In effect, there are multiple definitions of problems, and it is not unusual that different policy actors will select different sets of alternatives on the basis of identical information.

Whatever else policy analysis may be, it is the application of one or more types of rationality to the resolution of policy issues. _Policy analysis_ is a rational intellectual activity which employs multiple methods to monitor, evaluate, forecast, and recommend public policies. _Policy formation_, which includes but goes beyond policy analysis, is a rational intellectual activity embedded in a dynamic social, political, and organizational environment. The _policy process_ may be viewed in terms of three component activities:

1. _Intellectual activities_ of problem definition, forecasting, recommendation, monitoring, and evaluation;

2. Managerial activities of planning, staffing, organizing, controlling and directing operations in the pursuit of organizational objectives; and

3. Sociopolitical activities of negotiation, persuasion, bargaining, and compromise, each of which involves adaptations of policies in the course of time.

Policy analysis includes several different ways for rationally generating alternative solutions to policy problems. These tasks may be approached in at least four different ways, depending upon the relative emphasis given to methods, experience, and authority as bases for choosing preferable alternatives. Public policy analysis includes intellectual activities of monitoring, forecasting, evaluating, and recommending policy alternatives, thus placing heavy reliance on methods as a basis for choosing preferable alternatives. For example, preferable alternatives are generated in a large part through the systematic comparison of alternatives in terms of their probable costs. Equally important, public policy analysis also includes experience as a source for developing the factual and value premises necessary to carry out systematic comparisons of alternatives. Authority, in the form of beliefs about the intrinsic goodness or badness of policies, also plays a minor but important role in public policy analysis.

It is important to recognize that there are other modes for rationally generating alternative courses of action. For example, a variety of approaches which we might call "moralistic" or "ideological" place primary reliance on authority as a basis for choosing preferable courses of action. Here it is the source of statements about public policies which is important, rather than the methods by which alternatives are generated, or their basis in human experience. Commitments to policies because they are approved by some leading person, group or organization provide examples of authority as a basis for policies, as does the practice of supporting alternatives because they appear to lie within a particular tradition (e.g., "liberal," "conservative," "humanist," "socialist," "capitalist"). Although authority can be the primary basis for choosing preferable courses of action, it is important to note that methods and experience are also employed as secondary or tertiary bases of choice. Hence, a particular policy may be chosen principally because it is consistent with the platform of a political party (authority); it may also be subjected to systematic analysis (methods) and adjusted in the course of implementation (experience).

One of the major controversies dividing students of public policy in the past twenty years has centered on the relative weight which *methods* and *experience* ought to play in the analysis and formation of public policy. On one side of this controversy economist Charles Lindblom has written a series of influential books which argue that the experience of democratic societies in making and implementing public policy ought to serve as the primary basis for assessing the rationality of any given policy. For Lindblom, who has outlined with David Braybrooke a theory of "disjointed incrementalism," policymaking:

> is decision-making through small or incremental moves on particular problems rather than through a comprehensive reform program. It is also endless; it takes the form of an indefinite sequence of policy moves. Moreover, it is exploratory in that the goals of policymaking continue to change as new *experience* with policy throws new light on what is possible and desirable (Braybrooke and Lindblom, 1963:71, italics added).

Incrementalism places primary reliance on experience acquired in the past, as well as that which evolves in an unfolding future; at the same time it places secondary emphasis on the authority of the policies and the methods by which they are generated. The theory of disjointed incrementalism employs the authority of democratic processes and methods for making continuous comparisons of alternatives as important supplementary bases for assessing whether policies are preferable ones. Thus, incrementalism has been explicity equated with democracy (authority), and sets of rules have been developed which together represent methods for generating incremental courses of action in democratic policy settings. Some observers even suggest that incrementalism is the only form of decision-making consistent with the group basis of politics in a pluralistic, democratic society (Thompson, 1976:67).

The other side of the controversy is represented by an approach to policy-making that is often described as "comprehensive rationality." Comprehensive rationality, sometimes erroneously equated with the discipline of economics and fields such as operations research and systems analysis, is often described as an unrealistic methodological ideal. "The ideal way to make policy is to choose among alternatives after careful and complete study of all possible courses of action and all their possible consequences and after an evaluation of those consequences in the light of one's values" (Braybrooke and Lindblom, 1963:40). In effect, policy issues are treated as intellectual or technical problems, thus ignoring the organizational and sociopolitical dynamics in which policies are formulated and carried out. Political scientist Thomas Dye (1975:27-31) notes that rational-comprehensive policymaking assumes that decision makers know all society's value preferences and their relative weights, identify all policy alternatives available, correctly predict all the consequences of each alternative, and accurately calculate the ratio of achieved to sacrificed values for each alternative. Among the many objections to such assumptions the following are most important:

1. There are no generally agreed upon societal value preferences, only those of particular individuals and groups.
2. Values often conflict, making it difficult or impossible to compare or weigh them.
3. Policymakers maximize their own values--power, wealth, status--and are not motivated to act solely on the basis of societal preferences.
4. Policymakers do not maximize net values, but rather satisfy immediate demands for a solution.
5. Large investments in existing policies and programs prevent policymakers from considering new alternatives, since previous decisions foreclose present options.
6. The costs, availability, and time required to collect relevant factual data on all possible policy alternatives severely limit the search for information.
7. Policymakers and social scientists cannot predict the full range of probable consequences associated with each policy alternative.
8. Uncertainty about the probable consequences of policy alternatives induces policymakers to formulate policies which differ little from the status quo so as to avoid unanticipated consequences.

Despite criticisms of comprehensive rationality as an approach which places primary reliance on methods, it is clear that many economists, operations researchers, and systems analysts also rely on experience and authority as secondary bases for assessing the preferability of policies. Continuous search, feedback, and evaluation procedures built into planning performance and budgeting systems (PPBS) reflect a concern with experience, as does the recent emphasis on systematic experimentation as a basis for analyzing social programs before they are adopted as general policy (Rivlin, 1971). Similarly, certain varieties of policy analysis which go under the name of "public choice" are indistinguishable from incrementalism in their reliance on the authority of democracy in economic markets as a secondary basis for assessing the rationality of public policies (Ostrom, 1974).

The point of view adopted here is that public policy analysis, properly understood, places equal reliance on methods, experience, and authority as bases for assessing the rationality of public policies. The comparable emphasis placed on methods, experience and authority places policy analysis within those traditions of dialectical inquiry variously described as "mixed scanning" (Etzioni, 1968), "prescriptive-preferable" policymaking (Dror, 1971:261), and the "design of inquiring systems" (Churchman, 1971; Mitroff, 1974). Public policy analysis, viewed in this way, can be contrasted with prescriptive, descriptive, and authoritarian modes for assessing the rationality of policies. These four modes and their order of reliance on methods, experience, and authority are illustrated below in Figure 1-7.

	Mode Of Rational Choice			
Order of Reliance	Dialectical	Prescriptive	Descriptive	Authoritarian
Methods	1	1	2	2
Experience		2	1	3
Authority		3	3	1

FIGURE 1-7

Four Modes Of Rational Choice

In conclusion, it is important to note that the process of policy formation involves many competing conceptions of what is "rational"; for this reason policy formation may be described as multirational. Nevertheless, in considering this multirational character of policy formation we are not simply stating the obvious--namely, that individuals and groups tend to disagree about the sources of policy problems and their solutions. On the contrary, differences between the four modes of assessing the rationality of policy alternatives reflect fundamentally different modes of rational inquiry into public problems. In this context political scientist Paul Diesing (1962) describes five types of rationality, each of which is associated with a fundamentally different view of society:

1. Technical rationality is employed to solve technical problems, such that alternatives are assessed according to their utility in society.
2. Economic rationality is employed to compare the costs and benefits of goods and services, such that alternatives are assessed according to their efficiency in society.
3. Legal rationality is employed to assess the validity of written rules and recorded precedents, such that alternatives are assessed according to their legality in society.
4. Social rationality is employed to determine the consistency of societal norms and values, such that alternatives are assessed according to their contribution to the maintenance of social institutions.
5. Substantive rationality is employed to resolve conflicts generated by applying technical, economic, legal, and social rationality, such that alternatives are assessed on multiple bases. Different kinds of reason are appropriate for different types of problems.

These five types of rationality are closely associated with the four modes of rational choice discussed above. Technical and economic rationality, like the prescriptive mode of rational choice, places primary reliance on the methods by which alternatives are generated and analyzed. Legal rationality, like the authoritarian mode, emphasizes the personal, symbolic or ideological source of alternatives. Social rationality, closely associated with the descriptive mode of rational choice, places primary emphasis on experience as a basis for maintaining the consistency of societal norms and values. Finally, substantive rationality closely corresponds to the dialectical mode of choice, which places comparable emphasis on methods, experience, and authority. Political scientist Yehezkel Dror's characterization of "prescriptive-preferable" policymaking is one of several approaches within the dialectical mode. Theory and experience "are all relied upon, the composition of the mix depending on their availability and the nature of the problem. Explicit arrangements are made to improve the quality of policymaking through systematic learning from experience, stimulation of initiative and creativity, staff development, and encouragement of intellectual effort" (Dror, 1968; 1971:262).

STUDY QUESTIONS

16. What multiple methods does policy analysis employ?

17. Compare and contrast policy analysis with the process of policy formation.

18. Define and provide illustrations of the four principal modes of rationally generating, analyzing, and evaluating alternative solutions to policy problems.

19. What is the role of methods, experience, and authority in each of the four principal modes of rational choice?

20. Compare and contrast "disjointed incrementalism" and "comprehensive rationality" as approaches to describing policymaking. Now compare and contrast them as approaches to prescribing policies. How does the role of methods, experience, and authority change when we move from questions of description to prescription?

21. List the objections to comprehensive rationality as an approach to policymaking.

22. What are the major differences between dialectical, descriptive, prescriptive, and authoritarian modes of rational choice?

23. List the five fundamental types of rationality and their characteristics.

24. What are the major points of similarity between dialectical modes of rational choice and substantive rationality?

THE PROCESS OF POLICY FORMATION

Four modes for assessing the rationality of alternative courses of action--the dialectical, descriptive, prescriptive, and authoritatian modes--rely in fundamentally different ways on methods, experience, and authority as bases for analyzing public policies. Now we shall consider in more depth the kinds of methods available to the policy analyst, which we shall call policy-analytic procedures. The use of these procedures permits the analyst to transform experience into policy-informational components. Experience and methods are therefore interdependent; they are linked in a dynamic process of continuous change and adaptation which can be visualized as policy-informational transformations. Policy-informational components are transformed one into the other by the application of policy-analytic procedures.* In Figure 1-8 below there are five policy-informational components, illustrated as rectangles, and six policy-analytic procedures, which are drawn as ovals. Policy-informational transformations are depicted as connecting arrows (Figure 1-8).

Policy problems are the most general and difficult to define of all the policy-informational components. A policy problem arises in connection with three sets of circumstances. First, a human value or need must be identified. Second, certain events (e.g., rising costs of municipal services) must be defined as a public policy problem--i.e., as events which somehow interfere with the realization of values or the satisfaction of needs among some segment of a community. Third, individuals or groups beyond that part of a community immediately concerned must perceive themselves to be affected and join in organized political action. The problem then becomes a "public" one. For a problem to come into existence, however, human values and needs must first be compared with some set of events. An identical set of events--e.g., the deterioration of housing in central cities--may or may not be defined as a public problem, depending on whether the views of urban, suburban, or rural populations are considered.

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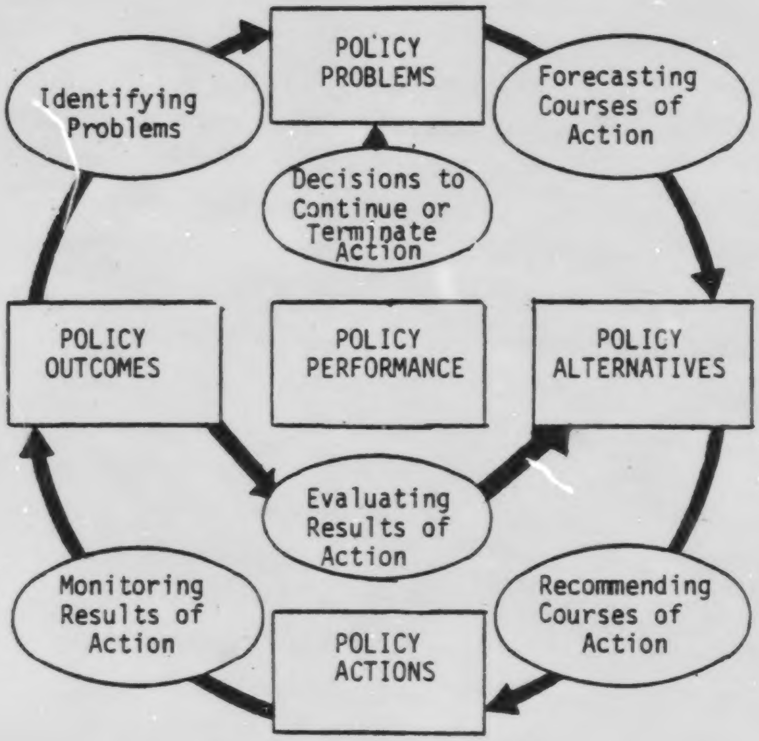
*Readers familiar with the logic of science will recognize some basic similarities (but also differences) between this schema and others which are used to illustrate scientific inquiry as a dynamic process (Wallace, 1971).


POLICY PROBLEMS
Identifying Problems
Forecasting Courses of Action
Decisions to Continue or Terminate Action
POLICY OUTCOMES
POLICY PERFORMANCE
POLICY ALTERNATIVES
Evaluating Results of Action
Monitoring Results of Action
Recommending Courses of Action
POLICY ACTIONS

Rectangles = Policy-Informational Components

Ovals = Policy-Analytic Procedures

Arrows = Policy-Informational Transformations

FIGURE 1-8

Elements Of The Process Of Public Policy Formation

In short, no policy problem is "value-free," since human values and needs provide the basic categories according to which policy problems are identified.

For any given policy problem there are a large number of policy alternatives available to alleviate or resolve discrepancies between values or needs, on the one hand, and events on the other. For example, increasing the availability and quality of central city housing might be accomplished through public investments in private construction activities, the establishment of public housing authorities, the provision of rent subsidies to urban landlords, or the disbursement of public home improvement loans. In order to identify a set of appropriate policy alternatives, however, policy-analytic procedures of forecasting must be employed to predict the probable consequences of alternative courses of action. Forecasting permits us to establish the factual premises necessary to make a rational choice. Nevertheless, factual premises alone are insufficient to transform policy alternatives into policy actions, since any choice requires that we have at least one value premise. Course of action A_1 may lead to outcome O_1, which is different from O_2, but the choice between these two outcomes cannot be made unless they can be compared on some scale of values which permits us to assert that O_1 is better than O_2 (or vice versa). This assertion, as we saw above, is a value premise. Factual premises and value premises are both necessary to apply procedures of recommendation such that policy alternatives may be chosen and transformed into policy actions.

The transformation of policy problems into policy alternatives and policy actions therefore involves two policy-analytic procedures: forecasting and recommendation. Forecasting, which is a special technical term for various kinds of prediction, assumes that we are first able to monitor events and related courses of action (e.g., the physical condition of urban dwellings and the behavior of landlords receiving subsidies). Monitoring itself is simply a special term for the description of events. Forecasting presupposes (i.e., requires before it can be done at all) monitoring, since predictions can normally be made only on the basis of knowledge of similar events which have occurred in the past. Similarly, recommendation presupposes forecasting as well as evaluation, since rational choice requires both factual and value premises. Finally, evaluation presupposes monitoring, since information about certain kinds of events provides the factual premises which are to be evaluated.

> [T]he first thing that has to be done in the analysis of a public policy issue is to monitor relevant conditions. Once monitoring is performed you are in a position to either forecast or evaluate the policy. To prescribe [or recommend] you must first monitor, forecast and evaluate (Coplin, 1975:23-24).

These policy-analytic procedures are based on simple and commonly used methods for making statements about the world. Descriptive statements refer to the existence of events, or their causes, while predictive statements refer to the likelihood that events or actions will occur in the future. By contrast, evaluative statements refer to the goodness or badness, rightness or wrongness, of particular events. Prescriptive statements, which presuppose each of the other types of statements, refer to preferred events which have been predicted in the future. These four types of statements are classified below according to time and the nature of their premises (Figure 1-9).

	Types of Premises	
Time	Factual	Value
Past/Present	Descriptive	Evaluate
Future	Predictive	Prescriptive

FIGURE 1-9

Statements About Public Policy
Classified According To Time
And Type Of Premise

The application of procedures for forecasting and recommendation is sometimes thought to be sufficient for attaining high levels of confidence that policies will result in preferred outcomes. Were this true, however, a large number of administrative structures and procedures (e.g., citizens' advisory groups, auditors general, congressional committees) would simply be costly and unnecessary additions to government. The outcomes of policy actions would not require the application of procedures of monitoring and evaluation, since all preferred consequences would be known in advance. Policy performance--i.e., the degree to which public policies achieve their intended objectives--would be known at the moment a policy is recommended. But, as we have seen, policy recommendations are subject to varying degrees of uncertainty which derive from incomplete information, the complexity of policy issues, and conflicts among multiple policy actors.

Given these complications, policy-analytic procedures of monitoring and evaluation are employed to transform policy actions into information about policy outcomes and policy performance. The outcomes and performance of policy actions cannot be known in advance with complete certainty; sometimes they cannot be reliably predicted at all. Monitoring and forecasting therefore perform a crucial role in providing information after policies have been adopted. Monitoring and evaluation are not simply requirements of forecasting and evaluation; they are also necessary for continuously generating new experience in the course of implementing policies. Procedures of monitoring and evaluation provide us with information about policy performance which may lead to (1) the identification of a new policy problem; (2) an adjustment of policies by recommending new courses of action; or (3) decisions to continue a policy unchanged, or terminate it altogether.

Policy formation is therefore a dynamic process composed of interdependent policy-informational components and policy-analytic procedures. Nevertheless, if we recall criticisms of comprehensive rationality as an approach to policymaking we will recognize that processes of policy formation are not wholly regular, sequential, or invariant: (1) policies are sometimes formulated by individuals who perform highly specialized technical functions (agency policy analysts), and at other times in situations where many specialists and non-specialists interact; (2) policies are sometimes formulated quickly as a response to crises, and sometimes slowly and over long periods of time; (3) policies are sometimes formulated with a high degree of methodological rigor, through the application of formal statistical techniques and mathematical models, and sometimes in an essentially intuitive and "extra-rational" manner; (4) policies sometimes rely heavily on experiences generated in the course of implementation, while at other times policies are based primarily on knowledge or assumptions about what occurred in the past and therefore "must" occur in the future; and (5) some policies are carefully monitored and evaluated, while others are approached with no systematic procedures at all. Whatever the exact pattern of deviation from the scheme presented above, the relations between components and procedures provide us with a systematic framework for comparing and contrasting different approaches to policy formation in complex policy environments. The framework also enables us to assess the merits both of scientific and popular theories of policy formation, which may or may not tell us very much about the ways that policies are actually made.

Returning to our discussion of four modes of rational choice, it should now be clear that the process of policy formation cannot be adequately represented as one which is or ought to be universally reliant on either methods or experience, as the controversy between "incrementalism" and "comprehensive rationality" suggests. The dynamic interdependence between the five policy-informational components (experience) and six policy-analytic procedures (methods) suggests that policy formation may best be described as a dialectical process involving relationships between theory and practice, on the one hand, and inductive and deductive approaches to inquiry on the other. These relationships are illustrated below as two basic dimensions of policy processes (Figure 1-10).

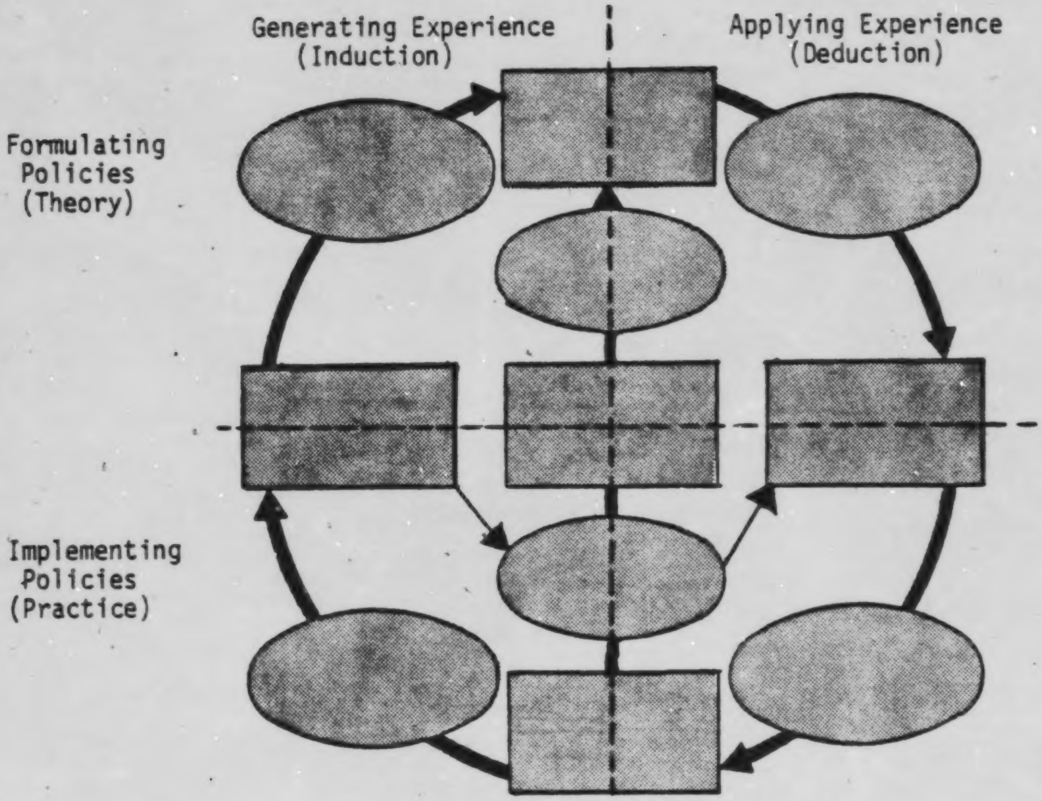

Generating Experience
(Induction)
Applying Experience
(Deduction)
Formulating
Policies
(Theory)
Implementing
Policies
(Practice)

FIGURE 1-10

Two Dimensions Of Policy Processes

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The two dimensions of policy formation illustrated above (Figure 1-10) help to provide answers to several key questions about the role of policy analysis in public administration. Policy-analytic procedures of forecasting and recommendation, for example, are always applied on the basis of the concrete experience of particular individuals and groups. Efforts to apply techniques of trend analysis, computer simulation, and strategic forecasting--no matter how complex, sophisticated, or formally rigorous these may be--are always rooted in the experience and values of particular segments of a community. Hence, the application of experience to policy actions (deduction) is heavily dependent on the methods by which that experience was generated (induction). If experience results in the identification of the wrong problem, then even the most rigorous of policy-analytic methods will not help. Indeed, they may make matters worse.

Second, it is not sufficient to have well designed policies and programs, so long as these cannot be systematically monitored and evaluated. Economist Alice Rivlin's critique of social programs executed during the War on Poverty emphasizes that the most well-intentioned applications of experience to the solution of social problems cannot replace experience generated through systematic monitoring and evaluation procedures (Rivlin, 1971). This is because there are a large number of political and administrative factors--for example, the legitimation, communication, coordination, staffing, and control of policies and programs--which cannot be anticipated even with the most complete information and sophisticated analytic procedures. Conditions may change markedly in the course of policy implementation, thus dramatically influencing policy outcomes. In short, policy-analytic procedures for generating experience from policy actions are equally important as those designed to apply experience in the form of forecasts and recommendations.

Third, the formulation of policies is closely linked to their implementation. In an important sense, different views on policy formulation are really "theories" until they have been implemented and put into "practice." Nevertheless, theory and practice are interdependent; it is impossible to have one without the other. Hence, the definition of a policy problem exerts a decisive impact on policy actions, and vice versa, such that popular conceptions of the supposed dichotomy between "theory" and "practice" are surely exaggerated. The interdependence of theory and practice--of policy formulation and implementation--is further illustrated (Figure 1-10) by the ambiguous or marginal position of policy-informational components labelled policy alternatives, policy outcomes, and policy performance. Information about these components is as much a matter of how problems were originally defined as it is a matter of concrete practice. Similarly, policy problems, policy performance, and policy actions also occupy a marginal position between inductive and deductive methods of generating and applying experience. Each of these policy-informational components is affected by the application of experience in the form of policy alternatives, as well as by the generation of new experience in the form of policy outcomes. In summary, the conceptualization of elements of the process of public policy formation (Figure 1-8) and their two dimensions (Figure 1-10) calls attention to the interdependence of methods and experience, induction and deduction, theory and practice. In succeeding units we shall consider these interdependencies in more depth, beginning first with an examination of the ways that information about policy outcomes is transformed into policy problems.

STUDY QUESTIONS

25. Define the five policy-informational components.

26. Define the six policy-analytic procedures.

27. How are policy-informational components transformed one into the other?

28. List the methodological prerequisites of forecasting, evaluation, and recommendation.

29. How are factual and value premises related to time?

30. List five reasons why the process of policy formation is not regular, sequential, or invariant.

31. Describe the two major dimensions of policy processes and their relation to each other.

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SELF-TESTING EXERCISE

1. There are literally tens of thousands of major, minor, and functional policies applied every day within the various issue-areas of public policy in the United States.
   - (a) True
   - (b) False
2. All groups may agree on the importance of a policy issue, but may differ markedly in their respective definitions of the problem.
   - (a) True
   - (b) False
3. Standard operating procedures and rules are examples of routine policies which have no influence on strategic decisions associated with major public policies.
   - (a) True
   - (b) False
4. As policies proceed from the minor and functional categories to the secondary and major levels, public organizations have less freedom to develop policies autonomously.
   - (a) True
   - (b) False
5. Questions of public accountability are more likely to be raised with respect to policies at the upper levels of policy structures.
   - (a) True
   - (b) False
6. Public policies assume different forms and consequences, depending on:
   - (a) The characteristics of policy environments
   - (b) The involvement of policy actors
   - (c) The ways in which policy problems are defined
   - (d) The level of policies within policy structures
   - (e) All of the above

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7. In 1969 the four most strongly held values of Americans seemed to be nationalism, quantity, work, and efficiency. In 1980 these same values are likely to be held:
   - (a) very strongly
   - (b) strongly
   - (c) weakly
   - (d) very weakly
   - (e) not at all

8. "While the difficulties and dangers of problems tend to increase at a geometric rate, the number of persons qualified to deal with these problems tend to increase at an arithmetic rate." This statement describes Dror's ____________________.

9. The major elements of a policy system are __________, ____________, and ______________.

10. The process of "rationalization" in modern public bureaucracies is a good example of:
    - (a) rationality
    - (b) non-rationality
    - (c) irrationality
    - (d) multirationality

11. The following illustration shows that:
    - (a) A_1 will result in O_1
    - (b) A_2 will result in O_2
    - (c) O_2 is preferable to O_1
    - (d) A_1 is preferable to A_2
    - (e) a, b, and c only
    - (f) a, b, and d only
    - (g) a, b, c, and d

Alternatives/Outcomes	Deaths
$A_1 = O_1$ (+2)	+3 (High)
$A_2 = O_2$ (+1)	+2 (Medium)
$O_2 > O_1$	+1 (Low)
	0 (None)

12. What conclusion would you most likely reach in the decision situation illustrated below?

    (a) choose A_1

    (b) choose A_2

    (c) no rational choice is possible

    (d) choose A_1 and A_2

$A_1 = O_1 + O_2$

$A_2 = O_3 + O_4$

$O_1 > O_3$

$O_2 < O_4$

13. The decision situation illustrated below is best described as one with the following properties:

    (a) ordinal utility ranking

    (b) multirationality

    (c) transitivity

    (d) intransitivity

    (e) a, b, and c only

    (f) a, b, and d only

    (g) a and c only

$A_1 = O_1 + O_2 + O_3$

$A_2 = O_4 + O_5 + O_6$

$A_3 = O_7 + O_8 + O_9$

$O_1 > O_3 > O_7$

$O_2 > O_4 > O_8$

$O_3 > O_6 > O_9$

14. Every act of rational choice may be said to have the following elements:
    - (a) the analysis of alternatives
    - (b) the choice of alternatives
    - (c) the definition of a problem
    - (d) all of the above
    - (e) a and b only

15. Simple models of rational choice assume:
    - (a) a single decision maker
    - (b) certainty
    - (c) full information
    - (d) transitivity
    - (e) all of the above
    - (f) a, b, and c only

16. Policy systems are typically composed of multiple actors and complex policy environments, such that conflicting sets of factual and value premises are the rule, rather than the exception.
    - (a) True
    - (b) False

17. Policy analysis is a rational intellectual activity based on the application of the following methods:
    - (a) monitoring
    - (b) evaluation
    - (c) forecasting
    - (d) recommendation
    - (e) a, c, and d only
    - (f) all of the above

18. Policymakers are often able to identify all or most of society's value preferences prior to recommending and implementing alternative solutions to problems.
    - (a) True
    - (b) False

19. Scientific research has shown that policymakers tend to maximize net or overall societal values, rather than satisfy immediate demands for a solution.
    - (a) True
    - (b) False

20. Policymakers, with the assistance of social scientists, can often accurately predict the consequences of all or most available policy alternatives.

    (a) True

    (b) False

ASSIGNMENTS

1. A report on American education by sociologist James S. Coleman and his colleagues has generated intense debate on educational policy since its publication in 1966. The "Coleman Report," published under the title Equality of Educational Opportunity (Washington, D.C.: U.S. Government Printing Office, 1966), challenged many assumptions about the impact of educational policies on student learning and achievement in the United States. For example, the Coleman Report suggested that such factors as pupils per teacher, investments in equipment and facilities, teachers' salaries, and the quality of curricula has no significant influence on student learning and achievement. Instead, it was found that family backgrounds of students and their peers were closely related to aptitude, attitudes toward education, and scholastic achievement scores. Further, Coleman and colleagues found that black schools were not physically inferior to white schools, and that black teachers have about the same education, experience, and salaries as white teachers.

In studying the policy implications of the Coleman Report the U.S. Civil Rights Commission found that black students attending predominantly black schools had lower levels of aspiration and achievement than black students attending predominantly white schools, who also had the same or very similar family backgrounds as black students in predominantly black schools. The average difference in achievement between these two groups of black students was more than two full grade levels, although the achievement levels of white students in classes almost half black in composition were not lower than white students in all-white schools. Lastly, special programs carried out in black schools were found to have no significant long-term effect on achievement levels.

The U.S. Civil Rights Commission used many of the conclusions of the Coleman Report to support policy recommendations designed to achieve racial balance through school busing. Since the appearance of the Coleman Report and subsequent efforts to implement busing policies, however, a number of policy actors--including government agencies, professional educators, social scientists, black leaders, and white neighborhood groups, to mention the most important actors--have disagreed continuously and sometimes violently about the report and its implications for public educational policy. Listed below are a series of statements from this debate.

Each of the statements below are primarily descriptive, prescriptive, evaluative, or predictive. Place the appropriate term (i.e., descriptive, prescriptive, evaluative, or predictive) beside each statement below:

_____ "Since schools in large urban areas are primarily black, the hopes of blacks for higher educational achievement cannot be realized."

_____ "The Coleman Report is a racist document based on the myth of white supremacy."

_____ "Educational reform will not bring about economic equality, since research shows that there is no association between school achievement and earnings, either for whites or for blacks."

_____ "Black students bused to predominantly white schools do not improve their performance relative to white students."

_____ "School busing is a failure, since it doesn't help black students, and perhaps even results in psychological harm."

_____ "In the long run, school busing is the only available alternative with which to correct racial imbalances in public schools, and should therefore be adopted as the only solution consistent with democratic traditions."

_____ "True social equality can only be achieved through a radical redistribution of income."

_____ "A national policy of compulsory busing ought to be adopted as soon as possible."

_____ "Radical educational reforms, including massive investments in special programs for disadvantaged black students, should be adopted to alter fundamental inequalities of opportunity in the country."

_____ "Community control of schools is a more important objective than any abstract liberal commitment to goals of social equality."

2. Each of the following statements about public policy involves factual premises, value premises or both. Designate each statement below as including factual premises (FP), value premises (VP), or both factual and value premises (FVP).

_____ "Increasingly, Affirmative Action programs in federal and state jurisdictions are demonstrating that all human beings are created equal."

_____ "The establishment by the General Accounting Office of procedures for performance auditing is resulting in the recognition that many municipal services are declining in quality."

_____ "The Law Enforcement Assistance Administration (LEAA) was established to attack increasing crime rates as our most important unresolved social problem."

_____ "The black family structure, weakened during the long era of slavery, has been maintained in its essential form by welfare programs which insure that black males will continue to play a minor and ineffective role in the family."

_____ "Alcoholics and other drug addicts who do not possess adequate motivation to control their habit should be excluded from treatment programs under the proposed legislation.

_____ "Welfare recipients are unlikely to seek or retain employment if they receive a guaranteed annual income exceeding the subsistence level."

_____ "Increasing the quality of early childhood education is the program's most important aim."

_____ "Management information systems appear to threaten fundamental individual freedoms guaranteed by the Constitution."

3. Each of the four modes of rational choice is closely related to one or more of the five types of rationality discussed in Unit 1. Draw lines which connect modes of inquiry to the type of rationality with which each mode is most closely associated.

Mode	Type
Dialectical	Technical
Descriptive	Economic
Prescriptive	Legal
Authoritarian	Social
	Substantive

4. Think carefully about a public policy with which you are familiar, either because it has been important to your agency or because you have had some other relevant experience (e.g., a term paper in one of your classes) with the particular policy. Describe the policy in terms of its five policy-informational components and the six policy-analytic procedures used to transform one component into another. Use the space provided below for your answer.

(a) What was the policy problem?

(b) What forecasting procedures were used to predict the results of alternative courses of action?

(c) What were the policy alternatives?

(d) What procedures for making recommendations were used?

(e) What policy actions were taken?

(f) What procedures for monitoring results of action were used?

(g) What were the policy outcomes?

(h) What procedures for evaluating outcomes were used?

(i) What was the level of policy performance?

(j) Was a decision made to continue the policy unmodified? To terminate it altogether? To modify the policy by identifying alternatives? Describe this decision.

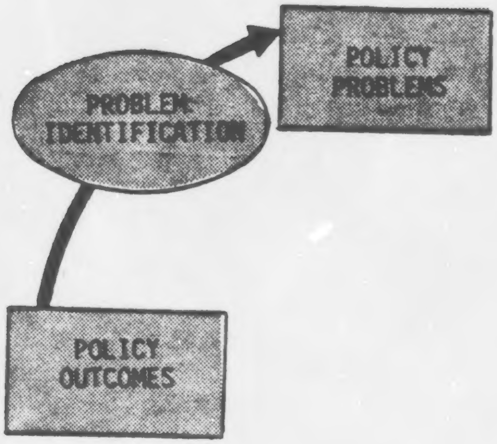
(k) What events were originally defined and classified as problems? In terms of what values or needs? Did the definition and classification of events change in the course of implementing the policy? In what way?

ANSWER KEY FOR SELF-TESTING EXERCISE

1.(a) 2. (a) 3. (b) 4. (a) 5. (a) 6. (c) 7. (d) 8. "Dror's Law"
9. policy actors, policy environments, and public policies 10. (b)
11. (e) 12. (c) 13. (g) 14. (d) 15. (e) 16. (a) 17. (f) 18. (b)
19. (b) 20. (b)

UNIT 2

POLICY PROBLEMS


POLICY PROBLEMS
PROBLEM IDENTIFICATION
POLICY OUTCOMES

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INTRODUCTION

Policy problems are human values or needs, self-identified or identified by others, which may be realized or satisfied through public action. This definition has the advantage of pointing out the important role of human values and needs in identifying policy problems; it has the disadvantage of oversimplifying the nature of policy problems, since elements of problem identification are complex and far from obvious. In this unit we shall therefore examine in greater depth (1) the nature of policy problems, including their key elements and essential characteristics; (2) the effects of popular and scientific myths on the identification of policy problems; (3) the role of certainty, uncertainty, and risk in shaping policy problems with different structures; and (4) the uses of value clarification in policy analysis. We shall begin to examine these questions by focusing on problem identification, a policy-analytic procedure which makes it possible to transform information about policy outcomes into policy problems.

LEARNING OBJECTIVES

After completing this unit you should be able to:

1. Identify the essential elements and major characteristics of policy problems.
2. Distinguish between various popular and scientific myths about policy problems.
3. Compare and contrast problems according to different degrees of "structuredness" and recognize the operation of errors of the third type (Error$_{III}$) in policy analysis.
4. Differentiate among processes of problem-solving, problem-prospecting, and problem-unsolving.
5. Apply alternative strategies of inquiry to the same problem domain.
6. Apply different approaches to identify policy problems.
7. Employ methods of value clarification to make the subjectivistic, artificial, and dynamic nature of policy problems explicit.

KEY TERMS AND CONCEPTS

- Problem Identification
- Popular Myth
- Self-fulfilling Prophecy
- Scientific Paradigm
- Well-structured Problem
- Structured Problem
- Ill-structured Problem
- Error of the Third Type (Error $_{III}$)
- Problem-solving
- Problem-prospecting
- Problem-unsolving
- Formal-deductive Mode of Inquiry
- Inductive Mode of Inquiry
- Dialectical Mode of Inquiry
- Value Clarification

OVERVIEW

Objectives	Tasks	Resources	Evaluation
1. Identify the essential elements and major characteristics of policy problems.	Study Questions 1,2 Test Questions 1,2	Unit Narrative	Self
2. Distinguish between various scientific and popular myths about policy problems and explain their role in policy analysis.	Study Questions 3,4,5 Test Questions 2,3,4,5,6,7	Unit Narrative	Self
3. Compare and contrast problems according to different degrees of "structuredness" and recognize the operation of errors of the third type (Error $_{III}$) in policy analysis.	Study Questions 6,7,8 Test Questions 1,8,9,10,11 Unit Assignment 4	Unit Narrative	Self and instructor
4. Differentiate between logical processes of problem-solving, problem-prospecting, and problem-unsolving.	Study Questions 9,10 Test Questions 12,13	Unit Narrative	Self
5. Apply alternative strategies of inquiry to the same problem domain.	Study Questions 17,12 Unit Assignment 1	Unit	Self and instructor
6. Apply different policy-analytic procedures to identify policy problems.	Unit assignment 2	Unit Narrative	Self and instructor

Objectives	Tasks	Resources	Evaluation
7. Employ methods of value clarification to make the subjectivisitic, artificial, and dynamic nature of policy problems explicit.	Unit Assignments 3 & 4	Unit Narrative	Self and instructor

THE NATURE OF POLICY PROBLEMS

Public policies are authoritative guides for carrying out governmental action in national, state, regional, and municipal jurisdictions. This definition implies that public policies have clearly identifiable goals; it also links the idea of public policy to government action. While most public policies do in fact involve recognizable goals, there are many public problems which persist or arise from an absence of goals and actions of government. For this reason we shall expand our definition of policy such that it includes inaction: "Public policy is whatever governments choose to do or not to do" (Dye, 1975: 1).

This expanded definition enables us to consider an essential aspect of relationships between policy outcomes and policy problems--policy problems may arise from information about the consequences of government action as well as government inaction. This characteristic of policy problems serves to emphasize the importance of information available prior to the identification of policy problems; it also raises difficulties in making judgments about the degree to which policy problems are the result of government inaction, since groups with contrasting political beliefs (e.g. conservatives, liberals, and radicals) take different positions on the responsibilities of government in resolving policy problems. For example, conflict concerning the role of government in protecting the environment reflect different views of policy outcomes and their relation to government action and inaction.

Policy problems are sometimes thought to be easily identifiable, provided sufficient information is available on the consequences of policy outcomes, a view which is often expressed by such statements as "It's easier to raise problems then to find solutions." For several reasons this view is largely a product of conventional wisdom and popular myth. First, the identification of policy problems is just as difficult as finding solutions. Second, the nature of courses of action believed to be possible depends directly on the ways in which a particular problem is initially identified. Third, a poorly identified policy problem will almost certainly result in the choice of the wrong policy alternatives. Lastly, the identification of problems depends only in part on the availability and quality of information about policy outcomes.

In general there are three key elements which must be present before any policy problems can be identified: (1) information about events associated with government action or inaction; (2) expectations that events can be altered in some significant way; and (3) judgments that some course of action is preferable on some scale of human values or needs. The presence of information, expectations, and judgments is closely associated with the policy analytic procedure we have called problem identification. Problem identification itself refers to the process of using information about policy outcomes such that expectations about possible future states may be linked explicity with judgments about the value of present events or conditions.

If we recall, at this point, the major features of postindustrial policy environments, it should be clear that there is no convenient way of objectively defining a broad range of problems within many of the most important policy environments. Policy issues surrounding education, revenue sharing, crime prevention, foreign aid, drug addiction and alcoholism, industrial health and safety, and environmental protection clearly permit the identification of multiple policy problems. In the area of education one source of information on policy outcomes in elementary and secondary schools (Equality of Educational Opportunity, 1966) has produced multiple definitions of problems in American schools. Conflicting points of view of the meaning and implications of the Coleman Report are directly related to procedures used to identify problems. In short, there are highly variable sets of information available on the "problem" of educational opportunity in the United States.

Our examination of the three key elements of any policy problem (information, expectations, judgment) should serve now as a basis for considering some of the essential characteristics of policy problems as they envolve in complex policy environments. Policy problems typically possess the following characteristics (Churchman, 1971; Ackoff, 1974a, 1974b; Rein, 1976):

1. Subjectivity. Events, actions, and conditions are selectively defined, described, and classified. Selectivity is not "unscientific;" it is rather unavoidable, given that reality is inexhaustible and cannot be fully recognized or known. Explanations are also subjective insofar as assumptions that are incapable of scientific proof in any form (e.g., assumptions about the nature of human beings,

knowledge, societies and the world as a whole) are regularly employed as a basis for explaining events, actions, or conditions (Sutherland, 1974).

2. Artificiality. Policy problems are possible only insofar as human beings are capable of making judgments that certain courses of action are preferable on some scale of values or needs. Social problems and the societies in which they arise are products of human activity; while societies and social problems are objective insofar as regular patterns of behavior or social institutions can be known and predicted, human beings are both the products and the creators of society and social problems.

3. Dynamics. Policy problems are constantly changing, both as a result of newly emerging patterns of conflict, bargaining, and consensus-formation among groups with different values and needs, but also as a consequence of experience and its effects on the process of identifying new problems and modifying expectations and evaluations of old ones.

4. Infiniteness. There are as many different solutions to a given set of problems as there are definitions, descriptions, classifications, explanations, and evaluations of events, actions, and conditions. Problems are seldom if ever "solved"; they are "resolved" and sometimes "unsolved" (Ackoff, 1974a).

5. Interdependence. Policy problems in one area impact upon and are influenced by problems in another area. The quality of information available to identify a problem, as well as our expectations that conditions may be improved in the future, depends heavily on our recognition that policy problems have multipie explanations and multiple consequences (e.g. ecological destruction derives from industrial growth, transportation networks, marketing practices, consumer preferences, and the distribution of political power, while its consequences are felt in areas of employment, health, welfare, safety, and party politics).

STUDY QUESTIONS

Answer each of the questions that follow:

1. "Our problem is not to do what is right," stated Lyndon Johnson during his years in the White House. "Our problem is to know what is right." (Quoted by Robert C. Wood, Undersecretary, Department of Housing and Urban Development, in R. A. Bauer and K. J. Gergen (eds.) The Study of Policy Formation, New York: Free Press, 1968 : V). Considering major characteristics of policy problems--i.e., subjectivity, artificiality, dynamics, infiniteness, and interdependence--to what extent can we know in advance which policy is the "right" one?

2. A commonly accepted viewpoint among many policy analysts in universities and the government is that policy formation can be made "objective," in the sense that the analysts own values can be eliminated from the process of formulating policy problems. Given the three essential elements of any policy problem consider the extent to which this claim about the value-free nature of problem formulation can be sustained.

POPULAR AND SCIENTIFIC MYTHS ABOUT POLICY PROBLEMS

Our examination of key elements and essential characteristics of policy problems should make it obvious that a variety of points of view about policy problems are inaccurate or distorted. One convenient way to discuss such points of view is to consider the prevalence of popular myths about policy problems. A popular myth is a partial truth, a distortion of events, such that "a selective perception of much available evidence. . permits men to make some general sense out of half-understood and incompletely observed events" (Lowry, 1974: 20). A popular myth, however much it may distort the actual meaning of events, may nonetheless be useful insofar as it makes it possible to make some situation intelligible. Certain myths surrounding Affirmative Action-Equal Employment Opportunity policies of federal and state governments--for example, white male stereotypes of "unqualified" minorities aggressively seeking jobs that they do not deserve, as well as minority stereotypes of white personnel officers systematically "discriminating" against qualified blacks and women--are distortions of reality. At the same time these popular myths serve as explanations of events, pointing to the fact that some minority applicants are unqualified and some personnel officers discriminate on racial and sexual grounds. The danger of such myths is that they are not recognized as partial myths and distortions, but as fully adequate explanations of given conditions. One consequence of myths is that people act in accordance with them, chiefly because there is always some evidence that can be offered in support of distorted preconceptions. In this way popular myths contribute to the development of self-fulfilling prophecies: "One's initial preconceptions tend to become reality when only those aspects of reality that support the belief are recognized and when the reactions of individuals to one another are such that they sustain the preconception" (Lowry, 1974: 20).

Popular myths about public policy are widespread. Consider, for example, the following preconceptions about policy problems, together with opposing points of view (cf Lowry, 1974):

1. National Security

-- The United States is an inherently peace-loving country surrounded by hostile or aggressive states. A massive military establishment and a strategy of bargaining from strength is necessary to maintain national security.

-- The United States has traditions of pacificism; it has nonetheless engaged in a number of foreign wars. In any case many countries perceive the United States as hostile or aggressive; thus, large military expenditures and the use of force or its threat only increases the probability of armed conflict.

2. Crime

-- Crimes of all types, particularly crimes of violence, are higher today than at any point in the country's history. The majority of crimes are committed by lower-class citizens.

-- Street crimes involving violence have been more widespread in previous historical periods than they are today. Some of the most serious crimes, both violent and non-violent, involve public officials and upper-class citizens.

3. Poverty

-- Poverty is an unavoidable condition of any modern society. Certain groups are unemployable because of mental and physical disabilities, age, illness, and lack of motivation.

-- The meaning of poverty depends on commonly accepted definitions which are continuously changing. Many unemployed persons have high motivation, extensive education, and excellent qualifications; others are unable because of their childhood surroundings and lack of opportunity to acquire sufficient education to qualify for jobs; still others cannot be expected to maintain high levels of motivation in sickening jobs which pay only subsistence wages.

4. Drug Addiction and Alcoholism

-- Drug addicts and alcoholics are morally degenerate and psychologically abnormal persons who come principally from the lowest social and economic class.

-- Drug addicts and alcoholics are physically and psychologically dependent on substances that result in temporary lapses into behavior viewed as unusual or deviant. Drug and alcohol abuse occurs in all social classes; the prevalence of drug addiction and alcoholism is greatest in the middle class.

5. Racial and Sexual Inequalities

-- The disproportion of white males in positions of prestige and power in government and industry is a result of racial and sexual prejudices of key people who make decisions about hiring and promotion.

-- Racial and sexual prejudice is least evident among key people in government and industry. Racial and sexual imbalances in public and private organizations are primarily a result of factors beyond the control of persons who make hiring and firing decisions (e.g., family structure and socialization, social values, inequality of educational opportunity).

6. Ecology

-- Pollution is caused by wealthy capitalists who wish to maintain existing levels of profit. Some damage to the environment is a necessary price to pay for a growing economy.

-- Pollution is caused by managers who seek to maintain existing levels of corporate performance so as to retain their jobs or be promoted. Pollution in socialist countries is often severe. A healthy economy can be sustained without ecological degradation, provided that those responsible for pollution--including manufacturers and consumers alike--are prepared to accept changes in behavior and life-styles.

We have defined problem identification as the process of using information about policy outcomes such that expectations about possible future states of affairs may be linked explicitly with judgments about the value of present events or conditions; it is clear that there are at least three broad classes of popular myths that exercise a decisive impact on procedures of problem identification (cf. Lowry, 1974: 24-25). We shall call these three classes of myth naturalistic, monistic, and intrinsic.

Naturalistic myths hold that any given set of events or conditions is somehow the inevitable result of "natural" social processes. Poverty, crime, unemployment, discrimination, wars, authoritarian management, and other phenomena are viewed as essentially unalterable, usually because of beliefs about the unchangability of human nature, society, and organizations. The artificial nature of social problems and social institutions is not recognized. It is impossible in principle to identify policy problems, since there is no basis for expectations that events or conditions might be altered in some significant way.

Monistic myths purport to explain porblems in terms of monistic (single) causes. Problems such as pollution, discrimination, and crime are explained by the intentions, attitudes, or characteristics of the social backgrounds of particular groups. Thus, for example, pollution is believed to be a consequence of selfish capitalists; discrimination in employment a result of prejudiced managers; and crime a function of lower-class behavior and attitudes. Any expectation about altering existing states of affairs will be heavily influenced by one-sided monistic interpretations of problems.

Lastly, intrinsic myths are likewise closely related to myths of the naturalistic and monistic variety. Whereas naturalistic myths promote the view that problems are inevitable--and hence cannot, by definition, be a problem--monistic and intrinsic myths encourage the belief that there are narrowly defined explanations of problems. While monistic myths imply that single individuals or groups are the cause of some condition, intrinsic myths promote the belief that the persons most directly affected by events or conditions are themselves the cause of the problem. This particular myth, which Lowry (1974: 25) has called "blaming the victim", implies that problems such as drug abuse, alcoholism, unemployment and dropping out of school are the result of inadequacies or imperfections in those whose behavior has been identified as a problem. Here the explanations of problems--and hence solutions--are cast in terms of assertions about moral weakness, inadequate motivation, or negative attitudes, rather than looking outward toward environmental conditions, social institutions, and the actions of other individuals and groups.

Given that the various types of popular myths discussed above are partial truths and distortions, it seems that the accuracy of beliefs might be improved by adopting a more scientific posture toward social problems. While this statement is true, it overlooks similar myths within the scientific community which also influence the choice of problems. One type of myth is a scientific Paradigm which defines what problems are legitimate for study, serves as a source of preferred methods, and provides theoretical assumptions which contain standards for judging whether new findings are acceptable solutions to scientific problems. Philosopher Thomas Kuhn has provided an account of scientific paradigms, which he defines as "the sources of the methods, problem-field, and standards of solutions accepted by a very mature scientific community at a given time" (Kuhn 1970: 103). The predominant feature of a scientific paradigm is its essentially conservative and parochial character.

A consideration of essential characteristics of scientific paradigms raises important questions about the ways in which conservative scientific paradigms can impede new discoveries, including scientific revolutions such as those associated with Copernicus and Einstein. Answers offered by Kuhn and others involve several observations: (1) new findings are often discovered accidentally; (2) these findings cannot be adequately explained by theories within the dominant paradigm, thus creating a scientific "anomaly"; and (3) the "anomaly" is either set aside as unsolvable or minor revisions are made in the original paradigm or a wholly new paradigm is developed to replace the former one. In the latter case, which is termed "extraordinary" science, we see the beginning of a genuine scientific revolution. This marks a period in which competing paradigms abound, old assumptions are criticized and rejected, and the philosophical bases of science are scrutinized and sometimes altered fundamentally.

The idea of scientific revolutions challenges the conventional view of science as objective, logical, cumulative, and inherently innovative. This challenge is important for policy analysis because it points to social, psychological, and political factors guiding the growth of scientific knowledge. In public administration and the policy sciences, for example, there are numerous competing paradigms and partial paradigms, each of which is related to different world-views and beliefs about the nature of human beings, societies and organizations (Dunn and Fozouni, 1976). Information about policy problems, expectations about future states of affairs and judgments about the present are decisively influenced by such paradigms. At the same time there is no known way to use empirical evidence to "prove" or "disprove" the paradigm itself. In this situation it is obviously necessary to pay great attention to the philosophical assumptions and human values which underlie paradigms, given that "facts" are of little or no help in resolving disputes (Gunther and Reshaur, 1971; Von Wright, 1971; Tribe, 1972).

There are a great many ways to analyze the relationships between scientific paradigms and policy problems. In order to illustrate briefly some of the major differences between paradigms in contemporary social science, together with their implications for the identification of policy problems we can consider two major dimensions of theories about societies. One dimension is what we will call the guiding research interest, which can assume two broad forms: a progressive interest in facilitating social emancipation versus a conservative interest in applying social technology. A second dimension, which we will call the focus of explanation, also has two broad forms: an emphasis on order versus an emphasis on conflict. Combinations of the two dimensions (Figure 2-1) help to compare and contrast different approaches to the identification of policy problems.

These four broad types of paradigms can exercise a decisive impact upon the identification of policy problems. Thus, the passive radical may believe that radical changes in events or conditions are possible in the future. Slowly evolving changes in social values will result in the degree of consensus necessary to alter society fundamentally, yet in an orderly and stable manner which maintains the continuity of social institutions. By contrast, the active radical may expect fundamental changes, but believe that such changes will occur primarily through social conflict and the redistribution of political and economic power, which will necessarily mean instability and discontinuity in social institutions.

Conservatives with different foci of explanation may expect that only gradual changes in events or conditions are possible. Nevertheless, passive conservatives, whose focus of explanation is on sources of order, view social change as a kind of "natural" process which involves minimal conflict and more or less self-regulating adaptations to new problems. By contrast, active conservatives for whom the focus of explanation is conflict may advocate purposeful efforts to control society, such that social conflict and discontinuity may be resolved through governmental intervention in some form. Social technologists differ, then, not in their expectations of change, which are in both cases conservative or reformist in character; they differ rather in their beliefs about the degree to which gradual changes will come about "naturally," through inherent mechanisms of adjustment (order), or through purposeful efforts to control changes that involve incompatible values and interests (conflict).

Guiding research interests and foci of explanation are related to two of the major elements of policy problems discussed above: expectations and judgments. To a large extent judgments about the desirability of some course of action are directly linked to guiding research interests, which are either progressive or conservative. Similarly, expectations that events or conditions can be altered in some significant way are also intimately

Guiding Research Interest

		Social-Emancipatory (Progressive)	Social-Technological (Conservative)
Focus of Explanation	Order	Expectations of radical change linked with explanations of the sources of social order, stability, continuity. (Passive Radicalism)	Expectations of gradual change linked with explanations of the sources of social order, stability, continuity. (Passive Radicalism)
	Conflict	Expectations of radical change linked with explanations of the sources of social conflict, instability, discontinuity. (Active Radicalism)	Expectations of gradual change linked with explanations of the sources of social conflict, instability, discontinuity. (Active Radicalism)

SOURCE: Adopted from Strasser (1976: 20).

FIGURE 2-1

A Framework For Analyzing Scientific Paradigms And Their Influence On The Identification Of Policy Problems tied to explanations that focus on order or conflict. Different kinds of judgments and expectations affect perceptions of events or conditions in policy environments. In other words, the interpretation of information about policy outcomes is dependent on expectations and judgments formed on the basis of popular and scientific myths. This is one among several reasons that policy problems are subjectivistic, artificial, dynamic, infinite, and interdependent.

3. Provide two or three examples of scientific and popular myths about policy problems.

4. In what ways do scientific paradigms influence the ways in which events in a policy environment are defined?

5. A great deal of social theory attempts to explain events and actions that have occurred in the past. At the same time policy-making in modern society is largely preoccupied with adapting to rapid changes in present conditions so as to devise solutions to future problems. Which particular temporal dimensions (past, present, future) are associated with the scientific paradigms discussed in the text?

THE STRUCTURE OF POLICY PROBLEMS

Policy problems, as we have seen, cannot be identified in a wholly objective manner--i.e., policy problems always depend in some way upon expectations and judgments which derive from human values and needs. This is not to say that such problems cannot be examined systematically, or that policy problems are simply the arbitrary creations of different individuals and groups, each of whose judgments, expectations, and sources of information are equally valid. The use of the term *subjectivistic*--rather than *subjective*--is intended to emphasize that an important aspect (but not the whole) of policy problems does not depend solely on "facts" or information" about policy outcomes. What we wish to do now is consider several ways in which the interplay of information, expectations, and judgments may be studied systematically. We shall do this by examining the concepts of certainty, uncertainty, and risk as these contribute to policy problems with different structures.

Recall our simple model of rational choice (Unit 1, Figure 1-4). Here we specified that any act of rational choice may be described in terms of a decision-maker who chooses among alternatives such that the alternative with the most desirable or valuable outcome will be selected. We further noted that certain conditions must be present before such a model can be accepted as viable, including a single decision-maker, alternatives which can be ordered transitively, full information, and certainty. Let us now elaborate and extend our simple model of choice so that we can explicitly identify problems with different kinds of structures.

A policy problem can be defined as follows (Mitroff and Sagasti, 1973: 120-121): How to choose from among a set of alternatives (A_1, A_2, . . . etc.) that alternative (A_i)* which increases the decison-maker's (Z's) return (U_{ij}), where U_{ij} is the value or utility to Z of the outcome O_{ij} which corresponds to the probability (P_j) that a given alternative (A_i will result in expected outcomes ($O_{ij} = A_i, P_j$). The problem, stated in a simpler way, is for a decision-maker (Z) to choose one alternative (A) that will result in an outcome (O) which has both the highest value (V) and the highest probability (P) of being attained.

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*The subscripts "i" and "j" mean any one of several known alternatives, utilities, outcomes, or probabilities or their combinations.

There are three basic types of structured policy problems, each of which is related in different ways to certainty, risk, and uncertainty:

1. A policy problem under conditions of certainty is one where all alternatives (A_i), utilities (U_{ij}), and outcomes (O_j) are known. In addition, relationships between alternatives (A_i) and outcomes (O_j) are known to be invariant or deterministic, i.e., subject to no error. Policy problems of this kind are well-structured.

2. A policy problem under conditions of risk is one where all alternatives (A_i), utilities (U_{ij}), and outcomes (O_j) are also known. In contrast with conditions of certainty, relationships between alternatives (A_i) and outcomes (O_j) are known probabilistically, i.e., they are subject to known estimates of error. Such problems are also well-structured.

3. A policy problem under conditions of uncertainty is one where all alternative (A_i), utilities (U_{ij}), and outcomes (O_j) are also known. In contrast with conditions of certainty and risk, relationships between alternatives (A_i) and outcomes (O_j) are known--but not in such a way that probabilities can be estimated for particular combinations of alternatives and outcomes. Policy problems of this kind are structured.

Well-structured and simple structured problems permit the application of precise analytic methods. In the case of well-structured problems there are explicit rules for selecting one preferred course of action. Simply structured problems permit judgments about the direction of expected outcomes--i.e., the outcomes of alternatives are known to be either positive or negative, but without knowledge of exact magnitudes or margins of error. Structured problems therefore permit "go" or "no-go" decisions.

Policy problems which are ill-structured ("wicked" or "messy") are those where one or more elements of choice--i.e., alternatives (A_i), utilities (U_{ij}), or outcomes (O_j)--are either totally unknown, or known with little or no confidence that relationships are not simply accidental. In this situation conventional analytic methods and rules of choice cannot be used. Ill-structured problems "are problems such that the biggest problem connected with them is 'to define the nature of the problem'. . . many social problems seem to be of this kind or quality" (Mitroff and Sagasti, 1973: 121).

Popular and scientific myths about policy problems encourage beliefs that problems which are in fact ill-structured are amenable to precise analytic methods and/or unambiguous rules for choosing among alternatives. It is here that problem identification becomes particularly crucial, since popular and scientific myths may contribute to the illusion that problems are well-structured or structured when they are not. Such illusions may be designated as Errors of the Third Type (Error $_{III}$), which refers to the probability of identifying the "wrong" problem where one should have identified the "right" problem (Mitroff and Featheringham, 1974.)*

The recognition that policy problems are often ill-structured has led a number of observers to stress the importance of making clear distinctions between different approaches to problems (Ackoff, 1974a, 1974b). Problem-solving is the process of defining objectives, alternatives, and outcomes such that the one best (optimal) solution is chosen. By contrast, problem-prospecting involves a continuous search for different sets of conflicting objectives, alternatives, and outcomes, such that persons making a choice can develop their own estimates of the validity of each problem formulation, while, at the same time, critically reflecting on the basis of choice. Problem-unsolving, on the other hand, involves the conversion of solutions into problems, such that problems that are supposed to be solved are redefined and made the subject of further improvement. "Unsolving problems contributes at least as much to progress as solving them does....the failures of society and its institutions derive more from their failure to face the right problems than from their failure to solve the problems they face" (Ackoff, 1974a: 239).

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*Errors of the First Type (Error$_I$) and Second Type (Error$_{II}$) refer to two types of statistical errors which occur when one attempts to determine if a relationship between two events occurred by chance (i.e., a test of a so-called "null hypothesis"). In one case there is a "conservative" assumption about measuring change; in the other there is a more "liberal" assumption. Both kinds of assumptions result in risks that one will either accept or reject a null hypothesis where one should not have done so. Any good statistics text will contain a discussion of these two types of error.

Philosopher and systems analyst C. West Churchman has provided a useful account of relationships among the kinds of problems discussed above (well-structured, structured, and ill-structured) and the methods employed to identify problems in the first place (Churchman, 1971). One of Churchman's most important conclusion is that the methods used to inquire into a problem--which he calls "inquiring systems"--directly affect the structure of that problem. Adapting Churchman's conclusions to public policy analysis we may say that (1) the identification of a policy problem represents an inquiry into the nature of that problem; (2) to inquire into a problem is to select particular kinds of information and not others;* (3) our knowledge about a problem is a function of the mode of inquiry we use to obtain information; and (4) to identify a problem "is to present information on its nature to some decision-maker who is (or may be) required to take action on the problem" (Mitroff and Sagasti, 1973: 119). In other words, the policy-informational component which we call "policy problems" cannot be separated from the mode of inquiry used to identify problems themselves.

Three different modes of inquiry may be employed to identify policy problems: the formal-deductive, the inductive, and the dialectical. The main characteristics of each are described below.**

1. Formal-Deductive. The formal-deductive mode of inquiry seeks to develop a mathematical or symbolic representation of problems. Basic concepts that refer to events or conditions in a policy environment are linked together into a network of systematically ordered theoretical propositions from which deductions about past and future events may be made (e.g., if A causes B, and B causes C, then A causes C). Formal-deductive modes of inquiry are best illustrated by the use of computers to make programmed (algorithmic) decisions. This mode of inquiry is best suited for well-structured problems to which formal analytic methods and unambiguous decision rules may be applied so as to generate the one best solution.

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*"[To] raise the question of the definition of fundamental terms is to raise a policy-information question..." (Mitroff and Sagasti, 1973: 131).

**For a full treatment of these and other modes of inquiry see Churchman (1971) and Mitroff and Sagasti (1973). Here it is possible to provide only the briefest summary of major characteristics of each mode.

2. Inductive. The inductive mode of inquiry seeks to develop an empirical or inductive representation of problems. Empirical observations of events or conditions in a policy environment are continuously generated such that an ever increasing body of information is made available. The inductive mode does not depend on logical consistency or the capacity to make deductions about events, but rather on the agreement among persons presumed to be knowledgeable in a given area ("experts"). Methods of systematically acquiring expert opinions and generalizing these for purposes of making policy recommendations provide an illustration of the inductive mode of inquiry. This mode is best suited for well-structured problems on which there is already strong consensus.

3. Dialectical. The dialectical mode of inquiry seeks to develop two or more completely antithetical symbolic or mathematical representations of problems--i.e., two opposing represenations based on the formal-deductive mode of inquiry. In addition, both formal-deductive representations are applied to the same empirical observations or data. Elements of the dialectical mode of inquiry may be found in ad hoc task forces composed of experts with conflicting opinions, in councils composed of representatives from business, government, consumer groups and trade unions, and in certain communities where multiple constituencies contribute to the formulation of community plans. The dialectical mode of inquiry is best suited for ill-structured problems whose identification can neither be accomplished through consensus, nor through a single formal-deductive representation of a problem. The process of problem identification is characterized by conflict and disagreement about the nature of the problem. The objective of the dialectical mode is to aid policy-makers in forming their own estimates of the adequacy of different problem formulations. Conflicting assumptions are made explicit, such that some kind of "creative synthesis" is employed as a basis for decisions.

Recalling at this point the four modes of rational choice discussed in Unit 1 (Figure 1-7), we can now make several explicit connections between rational choice, on the one hand, and modes of inquiry on the other. The dialectical mode of rational choice places equal emphasis on methods and experience as a basis for decisions. Similarly, the dialectical mode of inquiry also places comparable emphasis on methods and experience, but in such a way that conflicting formulations of a problem may be applied to the same empirical data and compared. It is also evident that different modes of inquiry and rational choice are suited to some types of problems, but not others.

The probability of identifying the "wrong" problem where one should have identified the "right" one is increased where there is a mismatch or lack of fit between modes of inquiry and choice, on the one hand, and the structure of problems on the other. The use of the dialectical mode to identify and resolve problems in areas of accounting, inventory, and cost controls (i.e., well-structured problems) results in Errors of the Third Type (Error $_{III}$), as does the application of formal-deductive and inductive modes to problems which cannot be successfully defined because of conflicting problem formulations--e.g., in issue-areas of public housing, welfare, drug and alcohol treatment, and labor relations. The relationship between modes of inquiry, types of problems, and the probability that one will identify the "wrong" problem is illustrated below in Figure 2-2.

6. The structure of policy problems differs according to the degree of uncertainty or risk attached to decisions. List the essential differences between certainty, uncertainty, and risk and their relationship to the structure of policy problems.

7. There are several broad types of organization structures in which policy-making occurs. One type is a "bureaucratic" structure, whose characteristics include hierarchical chain of command, specialization of tasks, and full information. The "bureaucratic" form of organization requires certainty about preferred outcomes of policy as well as certainty about beliefs that certain courses of action (alternatives) will result in a common set of preferred outcomes (J. D. Thompson, Organizations in Action, New York: McGraw-Hill, 1967 : 134-135). If many of the most important contemporary policy problems are "ill-structured," "wicked," or "messy" ones, what does this say about the appropriateness of different types of organization structures for dealing with such problems?

		Mode of Inquiry		
		Formal-Deductive	Inductive	Dialectical
Problem Type	Well-Structured	Error$_{III}$ Minimal	Error$_{III}$ Minimal	Error$_{III}$ Maximal
	Structured	Error$_{III}$ Low	Error$_{III}$ Low	Error$_{III}$ Maximal
	Ill-Structured	Error$_{III}$ Maximal	Error$_{III}$ Maximal	Error$_{III}$ Minimal

FIGURE 2-2

The Relationship Between Modes Of Inquiry, Types Of Problems, And The Probability Of Errors Of The Third Type

8. Provide two or three illustrations of Error$_{III}$, using your own experience as an illustration.

9. Considering "comprehensive rationality" and "disjointed incrementalism" as approaches to policy-making (see Unit 1), which of the three logical processes of dealing with policy problems (i.e., problem-solving, problem-prospecting, problem-unsolving) appears most closely associated with each approach?

10. Which of the three logical processes of dealing with policy problems is most closely associated with each of the levels within policy structures discussed in Unit 1 (Figure 1-1)?

11. How are simple and complex models of choice discussed in Unit 1 (see Figures 1-4-4 and 1-6) reled to formal-deductive and dialectical modes of inquiry? Specifically, how is the concept of an ordinal utility ranking connected with the notion of ill-structured problems and the dialectical mode of inquiry?

12. In Unit 1 (Figure 1-7) different modes of rational choice were linked to a reliance on methods, experience, or authority. How do formal-deductive, inductive, and dialectical modes of inquiry rely on methods, experience, or authority?

VALUE CLARIFICATION IN POLICY ANALYSIS

The systematic and critical examination of values is an essential element of policy analysis, principally because policy problems are subjectivistic, artificial, and dynamic. While most policy analysts agree that values can be studied systematically, many also share the point of view that values are simply relative to their source. This view, known as value relativism, implies that such values as social equity, communal solidarity, and self-actualization are wholly incapable of empirical "proof" and, for this reason, are best considered as emotive or non-rational expressions of individual desires. The most that policy analysts can do, according to this view, is to treat values as "data" for purposes of analysis. Since this view assumes that the analyst's own values can somehow be eliminated from the identification of problems, it fails to recognize the subjectivistic nature of policy problems.

Value relativism is associated with another position shared widely among policy analysts--viz., the view that procedures or methods of policy analysis can be used for good or ill, depending only on the purposes for which they are used. This view, which is known as applied scientific instrumentalism, is based on a search for detached analysis and value-free concepts. "Values" and "facts," according to this view, can and ought to be separated in the course of identifying policy problems. The policy analyst should accept certain values and problem formulations as "given" and then apply "neutral" procedures of policy analysis to reach appropriate solutions.

There are many philosophical and practical problems associated with value relativism and applied scientific instrumentalism. As we have already seen, the key elements and essential characteristics of policy problems raise serious doubts about the "objectivity" of policy analysis. Equally important, values are not simply the personal psychological or emotive preferences of individuals, i.e., arbitrary expressions of individual wills. While values are often expressed in this personal context, there are two further types of contexts in which value statements and judgments are made. These are what philosopher Abraham Kaplan (1964: 190-191) calls the standard and ideal contexts of values. The standard context involves value statements about particular (standard) situations--e.g., "school busing as a means to achieve racial balance in schools is a bad policy in the eyes of most white middle-class citizens." By contrast, the ideal context involves value judgments that are not related to any particular (standard) context, but to all possible contexts irrespective of time and place. Relationships between value contexts and the form in which values are communicated are illustrated below (Figure 2-3).

Context	Form of Communication
Personal	Expressions
Standard	Statements
Ideal	Judgments

FIGURE 2-3

The Context And Form Of Communication Of Values

Whatever their context and form of communication, values can be explained as well as justified. While there is always a basis on which values may be explained (e.g., "The lower classes favor social programs designed to create greater equity."), there are also grounds on which values may be justified (Kaplan, 1964: 387-388). The grounds of values provides reasons as to why they should be accepted (e.g., "Programs which insure greater social equity are the best way to establish conditions which facilitate the development of the human personality").

As we have seen in our examination of popular and scientific myths about policy problems, facts and values are interdependent. In order that a piece of information be considered a "fact" it must first be filtered through some conceptual framework, including frameworks established by the scientific community (scientific paradigms) and by means of ordinary language (popular myths). Induction does not involve the direct apprehension of "raw data;" rather it presupposes basic concepts and categories with which to organize experience. Moreover, any given empirical generalization--e.g., that the fiscal capacity of large cities is declining--requires interpretation in terms of some theory, paradigm, or frame of reference which itself implies certain human values and not others (Gunther and Reshaur, 1971). The primary function of frames of reference, paradigms, and theories (including those which are based on everyday language) is to explain and interpret empirical generalizations about events and conditions in policy environments. Nevertheless, empircal data does not "prove" or "validate" frames of reference paradigms, or theories; data can at best "falsify" them, even though this is difficult and uncommon in social sciences (Von Wright, 1971: 203). In other words, the same data can be, and often is, consistent with conflicting representations of a problem.

The implications of the above analysis are critical for an understanding of the role of values in policy analysis. No scientific or popular inquiry into a policy problem will be free from the influence of human values, for all modes of inquiry are ultimately derived from beliefs about the nature of human beings and societies. These positions "are themselves a prioristic in nature, predicated as they must be on cosmological-teleological suppositions (i.e., a assumptions about time, order, conflict, and the ends of human life) which are incapable of empirical corroboration in any form "(Sutherland, 1974: 4). The implication of this statement is that all approaches to the analysis of public policy should be treated as potentially "ideological", in the sense that particular methods of analysis detract from a recognition of values and interests which are implicit, ambiguous, or concealed. In economist Gunnar Myrdal's words, written more than thirty years ago, the "attempt to eradicate biases by trying to keep out the valuations themselves is a hopeless and misdirected venture---There is no other device for excluding biases in social sciences than to face the valuations and to introduce them as explicitly stated, specific, and sufficiently concretized value premises" (Myrdal, 1944: 133).

The recognition that values play a decisive role in policy analysis can promote a self-reflective and critical orientation toward the identification of policy problems. A set of working guidelines for value clarification in policy analysis might include the following (Tribe, 1972: 107):

1. Insofar as policy analysis ignores or disregards value conflicts and procedures for their resolution, there should be an attempt to make explicit the influence of different values in shaping interdependencies between policy-analytic procedures and policy-informational components. Values should be regarded as an integral element of the policy process.

2. Insofar as policy analysis conceals moral issues in a search for value-free concepts and value-neutral assumptions, techniques and procedures, there should be purposeful efforts to recognize and clarify value expressions, value statements, and value judgments. Human values inevitably influence policy analysis as an intellectual activity.

3. Insofar as policy analysis rigidly separates facts and values, treating the latter as "given" or "constant," there should be attempts to focus on the basis and ground of values as these provide explanations and rational justifications over time.

4. Lastly, insofar as policy analysis passively accepts as "given" the identification of problems on the basis of particular popular and scientific myths, there should be greater attention to alternative formulations of problems, different modes of inquiry, and problems whose structures vary markedly. Some combination of problem-solving, problem-prospecting, and problem-unsolving may help to avoid one of the fateful errors of policy analysis--identifying the "wrong" problem where one should have identified the "right" one.

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SELF-TESTING EXERCISE

1. The most decisive aspect of policy formation is the choice of preferred courses of action to resolve a problem, since this determines the overall degree of policy performance in resolving problems.

   (a) True

   (b) False

2. Human values enter into the choice of problems, but need not influence our knowledge of why certain problems arose in the first place.

   (a) True

   (b) False

3. Popular and scientific myths are useful and even necessary, even in their most extreme or distorted form.

   (a) True

   (b) False

4. A "self-fulfilling prophecy" is a good example of the practical effects of ________________ in guiding future actions.

5. "Poverty will always be with us. It is the result of the inherent unemployability of some segments of the population due to laziness, illness, age, mental inferiority, and the like." This statement expresses the following popular myths:

   (a) social problems are natural or inevitable.

   (b) social problems are the result of the beliefs, values, or character of particular segments of the community.

   (c) social problems are the result of inadequate or deficient environments in which persons experiencing problems live.

   (d) a and b

   (e) a, b, and c

6. "Social problems result from the ways that dominant groups in society define and identify deviations from commonly accepted forms, rather than as a consequence of innate characteristics of individuals or segments of a community." This statement is an illustration of the following characteristics of policy problems:

   (a) interdependence

   (b) dynamics

   (c) artificiality

   (d) subjectivity

   (e) infiniteness

   (f) all of the above

7. A decision problem under risk is one where:

   (a) the relation between alternatives and outcomes is unknown or does not differ significantly from what could occur by chance alone.

   (b) the relation between alternatives and outcomes is known with complete certainty.

   (c) the relation between alternatives and outcomes is known within certain acceptable bounds of likelihood or probability.

   (d) the relation between alternatives and outcomes is known in general, but estimates of likelihood or probability cannot be calculated.

8. If many of our most important contemporary problems are "ill-structured," "wicked," or "messy," it follows that training for top-level managers and policy-makers should emphasize:

   (a) the acquisition of statistical tools.

   (b) skills in using management information systems.

   (c) human relations and other communications skills.

   (d) broad conceptual and analytical skills.

9. Which of the following problems are "ill-structured" ones?

   (a) developing a national policy for the treatment of alcoholics.

   (b) creating secondary school policies which will reduce the number of dropouts.

   (c) developing a reporting system which permits the monitoring of Equal Employment Opportunity-Affirmative Action programs.

   (d) developing a system of sanctions against violations of the occupational Health and Safety Act (1975).

   (e) developing effective guidelines for industrial waste to be enforced by the Environmental Protection Agency.

   (f) allocating foreign assistance such that recipient countries remain progressive but politically stable.

   (g) all of the above.

10. In order to improve the quality of life of poor people in central cities very large investments in high-rise apartments, office buildings, and convention and sports facilities are made as part of a plan for improving the quality of life in central cities. Subsequently the poorest of residents leave the area. This description best represents:

   (a) error of the third type.

   (b) blaming the victim.

   (c) industrial development.

   (d) social disorganization.

   (e) all of the above.

11. As one moves downward in organizational policy structures from major and minor policies to standard operating procedures and rules we tend to find that the nature of policy problems changes such that:

    (a) problem-solving becomes more relevant.

    (b) problem-prospecting becomes more relevant.

    (c) both problem-solving and problem-prospecting become more relevant.

    (d) problem-solving and problem-prospecting are equally relevant at all levels.

12. The following are among the major reasons why problem-solving is inadequate as an approach to many strategic problems of resource allocation in society:

    (a) mathematical and statistical techniques required for problem-solving cannot be used for solving ill-structured problems.

    (b) policy problems are artificial, subjective, and dynamic.

    (c) the identification of policy problems depends upon human values which conflict and change over time.

    (d) information is never complete.

    (e) a and b only.

    (f) a, b, and c only.

    (g) b, c, and d only.

ASSIGNMENTS

1. To define, classify, explain, and evaluate events or actions in a policy environment requires that we use certain concepts rather than others. For this reason it has been observed that: (a) the conceptualization of a problem represents an inquiry into the problem's essential characteristics or nature; (b) the conduct of inquiry into a problem results in particular kinds of information on the problem's nature; (c) what we know about a problem is determined by the mode of inquiry we use to obtain information; and (d) to conceptualize a problem "is to present information on its nature to some decision-maker who is (or may be) required to take action on the problem" (Mitroff and Sagasti, 1973 : 119).

   After reviewing the strategies of inquiry into policy problems discussed in the unit narrative, place the appropriate symbols (FD = Formal-Deductive, I = Inductive, D = Dialetical) beside the following strategies of inquiry employed to conceptualize policy problems in the issue-area of labor relations.

   _____ "The Governor today received a commissioned expert's report on problems of labor productivity in state agencies. The report states that the main cause of decreasing productivity in government is the high rate of growth of unionized jobs, together with resultant increases in work slowdowns and strikes. The report recommends that the Governor introduce a set of strong legislative guidelines which will limit union membership to public employees performing non-essential jobs and severely curtail rights to strike."

   _____ "The Study Group on Labor Relation's today submitted its final report to the Governor. The Study Group, composed of experts drawn from industry, federal agencies, and leading universities across the country, offered a unamimous set of conclusions and recommendations. First, the Study Group finds no evidence to support the contention that increased unionization among public employees is the sole or even primary cause of declining productivity among public employees. Indeed, the report of the Study Group notes that productivity in private industry has declined slightly more than in public agencies over the past 20 years, but with no appreciable increase in unionization. At the same time, observes the report, there are increasing indications that labor turnover, absenteeism, and low morale are increasingly prevalent in public and private employment alike. The report goes on to state that such problems appear to be related to changes in the work ethic produced by a significantly higher level of education among all employees than was the case 20 years ago. The chief recommendation of the Study Group is that legislation be introduced to establish a massive program of human relations training in state agencies."

____ "A spokesman for public employees met today with the Governor to express their reactions to several recent reports on productivity in state agencies. Unionized members, said the spokesman, are equally or more productive than non-unionized state employees. The main source of strikes (which the spokesman observed are fully within the law) is low wages and inadequate fringe benefits, which are far out of line with private industry. Attempts to dodge such issues by instituting training programs, declared the representative, are simply manipulative devices that will further aggravate labor-management relations and lead to strikes."

____ "A spokesman for the Governor's office indicated today that serious thought is being given to a proposal to establish employee's councils in each state agency. Councils will be composed of representatives from management, labor, and citizens' groups. The main issues which councils will address fall into three areas: wages and fringe benefits; the quality of public services; and working conditions, including employee discipline, working hours, and occupational health and safety. The spokesman reported that the Governor is unwilling to initiate or approve any new legislation until such time as employees' councils offer their first reports on different views of labor productivity in state agencies."

2. Policy analysis involves close interrelationships between facts and values. This does not mean, however, that factual and value premises cannot and should not be distinguished; the point is to avoid rigidly dichotomizing them into mutually exclusive categories. The following assignment is designed to develop skills in value clarification, which involves the making of distinctions between various kinds of facts and values.

   Each generalization listed in the table below may be interpreted factually and valuatively. In each of the specified columns place appropriate responses to the following four kinds of questions:

   (a) Value Expression, Statement, or Judgment (+ or -). Designate each generalization in terms of whether it represents an event, action, or condition that is good or bad from the standpoint of your own values (personal context), those of a particular group (standard context), or those of humankind in general (ideal context).

(b) Value Ground. Determine the ground or justification of value expressions, statements, and judgments designated as positive (+) or negative (-) in the first column. For example, if you have designated as negative (bad) the statement "malnutrition causes mental retardation," the ground on which you assign the negative value might be: "mental retardation prohibits the attainment of full human potential." Provide grounds for values in the personal, standard, and ideal contexts.

(c) Rank Value. Rank each of the generalizations in the table according to its importance as a policy problem. In this column, do not designate generalizations in terms of their inehernt value (i.e., either good or bad), but in terms of a scale ranging from 1.0 (most important) to 5.0 (least important).

(d) Probable Accuracy. Each statement is also a more or less accurate facutal description or explanation of events, actions, or conditions. Determine the probability that each statement is true, using a scale that ranges from 0.0 (totally false) to 1.0 (absolutely true).

Note that the table on the following page includes a sample answer in the first row.

3. Return to the answer in the first row third column of Assignment 3. Does that ranked value represent an ordinal utility ranking with properties of transitivity? Explain your answer briefly.

Empirical Generalization	Expression/Statement Judgment (+) or (-)		Ground	Rank Value (1.0-5.0)	Probable Accuracy (0.0-1.0)
1. Wealthy persons receive preferential treatment from the law.	Personal	-	I am not wealthy	3.5	.90
	Standard	+	It is good for the rich.		
	Ideal	-	Equality is essential for democracy.		
2. Fifteen percent of the population receives sixty percent of the income.	Personal				
	Standard				
	Ideal				
3. Legalization of abortion guarantees fredom of choice.	Personal				
	Standard				
	Ideal				
4. Municipal services are increasing in cost and declining in quality.	Personal				
	Standard				
	Ideal				

Empirical Generalization	Expression/Statement/ Judgment (+) or (-)		Ground	Rank Value (1.0-5.0)	Probable Accuracy (0.0-1.0)
5. Lower-class persons are responsible for increasing crime rates.	Personal				
	Standard				
	Ideal				
6. Poverty will always be with us.	Personal				
	Standard				
	Ideal				
7. Homosexuals and other sexual deviants tend to commit more crimes than other groups in society.	Personal				
	Standard				
	Ideal				
8. Pollution is the result of the decisions of wealthy businesses.	Personal				
	Standard				
	Ideal				

Empirical Generalization	Expression/Statement/ Judgment (+) or (-)		Ground	Rank Value (1.0-5.0)	Probable Accuracy (0.0-1.0)
9. States with competitive two-party systems allocate more resources to welfare and social services than those dominated by one party.	Personal				
	Standard				
	Ideal				

SOURCE: Adapted from Coplin (1975).

4. Using the public policy which you analyzed in Unit 1 (Assignment 4), provide short answers to the following questions:

   (a) What are the contexts of the values which underlie the policy problem?

   (b) What is the basis for these values?

   (c) What is the ground for these values?

   (d) Do values exhibit properties of an ordinal utility ranking?

   (e) Would you characterize the problem as well-structured, simply structured, or ill-structured? Why?

ANSWER KEY FOR SELF-TESTING EXERCISE

1. (b) 2. (b) 3. (a) 4. popular myths. 5. (d) 6. (f) 7. (c)
8. (d) 9. (g) 10. (a) 11. (a) 12. (g)

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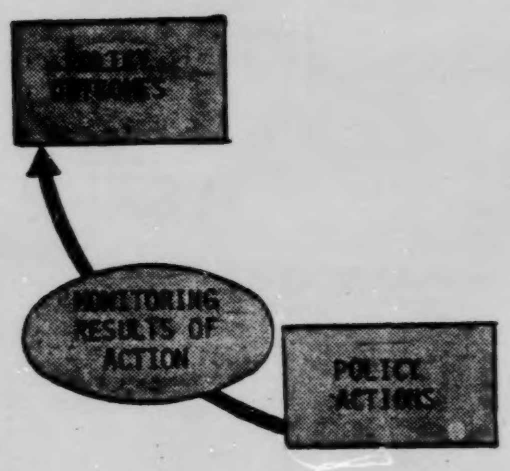
UNIT 3

POLICY OUTCOMES


MONITORING
RESULTS OF
ACTION
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INTRODUCTION

Problem identification, as we have seen, involves the use of information about policy outcomes such that expectations about possible future states may be linked explicitly with judgments about the value of present conditions. Essential characteristics of policy problems--i.e., subjectivity, artificality, dynamics, infiniteness, and interdependence--are therefore products of the interplay of information, expectations, and judgments.

In this unit we shall examine in greater depth the policy-informational component called policy outcomes. Specifically, we will consider (1) the role of monitoring in transforming information about policy actions into information about policy outcomes; (2) the various ways that policy outcomes and actions may be measured; (3) the different methods available for summarizing, displaying, and interpreting information; (4) alternative approaches to monitoring outcomes, impacts, processes and inputs; and (5) certain fallacies associated with the measurement of policy outcomes and actions.

LEARNING OBJECTIVES

After completing this unit you should be able to:

1. Distinguish monitoring from other policy-analytic procedures.
2. Compare and contrast different levels of measurement.
3. Construct constitutive and operational definitions of outcome and action variables.
4. Select appropriate indicators and indices with which to monitor policy outcomes and actions.
5. Employ different tabular and graphic techniques to display and interpret information about policy outcomes and actions.
6. Compare and contrast different approaches to monitoring policy outcomes and actions.
7. Identify various fallacies associated with the measurement of policy outcomes and actions.

KEY TERMS AND CONCEPTS

- Monitoring
- Policy Outcome
- Policy Output
- Policy Impact
- Policy Action
- Policy Input
- Policy Process
- Measurement
- Levels of Measurement
- Variable
- Constitutive Definition
- Operational Definition
- Indicator
- Index
- Tabular Display
- Graphic Display
- Social Accounting
- Social Auditing
- Social Experimentation
- Social Research Cumulation
- Monitoring Fallacies

OVERVIEW

Objectives	Tasks	Resources	Evaluation
1. Distinguish monitoring from other policy-analytic procedures.	Study Questions 1-4 Test Questions 1-5	Unit Narrative	Self
2. Compare and contrast different types of levels of measurement.	Study Questions 5-6 Test Question 6	Unit Narrative	Self
3. Construct constitutive and operational definitions of outcome and action variables.	Study Questions 7-8 Test Questions 7-8 Unit Assignment 1	Unit Narrative	Self and Instructor
4. Select appropriate indicators and indices with which to monitor policy outcomes and actions.	Study Questions 9-10 Test Questions 9-11 Unit Assignment 2	Unit Narrative	Self and Instructor
5. Employ different tabular and graphic techniques to display and interpret information about policy outcomes and actions.	Study Question 11 Test Questions 12-14 Unit Assignment 3	Unit Narrative	Self and Instructor
6. Compare and contrast different approaches to monitoring policy outcomes and actions.	Study Questions 12-14 Test Questions 15-17	Unit Narrative	Self

Objectives	Tasks	Resources	Evaluation
7. Identify various fallacies associated with the measurement of policy outcomes and actions.	Study Question 15 Test Question 18	Unit Narrative	Self

THE ROLE OF MONITORING IN POLICY ANALYSIS

Monitoring plays a central role in generating experience which serves as a basis for problem identification, forecasting, recommendation, and evaluation. Procedures for monitoring the consequences of policy actions provide us with information about how a particular policy worked and why. Monitoring helps to establish factual premises after a policy has been implemented, thus contributing to the identification of new policy problems and serving as a basis for forecasting and recommending alternative courses of action. Monitoring also provides essential information on policy outcomes, which may be evaluated in terms of the degree to which policies actually contribute to the resolution of policy problems. The essential differences among the five policy-analytic procedures are summarized below:

1. Problem identification involves the use of information about policy outcomes such that expectations about possible future states may be explicitly linked with judgments about the value of present conditions. Policy outcomes in various forms (e.g., information about poverty, unemployment, health) provide a basis for determining whether present values or needs are being met--i.e., identifying a policy problem. Problem identification is the most complex of all policy-analytic procedures and does not seem to have a clear "logic" of its own. The difficulty of clearly defining problem identification stems from the fact that it involves operations of description, prediction, evaluation, and prescription--i.e., operations which are essential to the other policy-analytic procedures.

2. Monitoring involves the description of events and conditions within some specifiable time period. Monitoring helps to establish factual premises about the consequences of past policy actions--i.e., descriptive statements about how certain policy outcomes occurred and why.

3. Forecasting involves the prediction of events that may result from policy action (or inaction) in the future. Forecasting helps to establish factual premises about the probable consequences of future policy actions--i.e., predictive statements about the kinds of outcomes which will result from alternative courses of action.

4. Evaluation involves the assessment of the degree that previously monitored events have become better or worse according to a given set of objectives. Evaluation helps to establish value premises about the desirability or worth of outcomes of past actions--i.e., judgments about the degree to which policy outcomes actually contribute to the satisfaction of human needs and values.

5. Recommendation involves the choice among alternative courses of action whose consequences have been forecast into the future. Recommendation establishes factual and value premises about the probability that future courses of action preferred on some scale of values will actually occur--i.e., prescriptions about courses of action which are likely to improve events according to a given set of objectives.

The relationship between monitoring and other policy-analytic procedures can be illustrated by considering how a national policy-maker in the Law Enforcement Assistance Administration (LEAA) might employ information provided by the Federal Bureau of Investigation to make decisions about federal crime prevention policies and programs. The F.B.I. publishes annual statistics in the form of Uniform Crime Reports, which is a uniform classification of the number of serious offenses known to federal, state, and local police authorities per 100,000 population. It is generally acknowledged that these statistics greatly understate the actual volume of crime. Crime may go unreported because citizens believe that police cannot enforce the law, because they fear reprisals, and because police authorities desire to maintain a favorable public image. The actual volume of crime is thus two to three times greater than that which is reported, depending on the category (e.g., rape versus burglary). Acknowledging these limitations a policy-maker may use the Uniform Crime Reports as a basis for monitoring events, actions, or conditions in the policy environment. An example of information from these reports is provided on the following page in Table 3-1.

TABLE 3-1

Reported Offenses Per 100,000 Persons
in Selected Years, 1960-72

Category	Year 1960	 1965	 1970	 1972
Murder and Non-Negligent Manslaughter	5	5	8	9
Forcible Rape	9	12	18	22
Robbery	52	61	172	180
Aggravated Assault	82	107	162	187
Burglary	465	605	1,068	1,126
Larceny	271	393	859	883
Auto Theft	179	251	454	423

SOURCE: Federal Bureau of Investigation, Uniform Crime Reports, 1966-1971.

A federal policy-maker can use information about policy outcomes contained in the Uniform Crime Reports to monitor, evaluate, forecast, and make recommendations. First, the Uniform Crime Reports can be used to monitor annual changes in the incidence of known crimes in various categories. The first four categories of crime in Table 3-1 can be combined to form the category "crimes against person." The last three categories can be combined to form a second broad category, "crimes against property." These two broad categories can then be compared in terms of changes in the incidence of known crimes over some period of time (e.g., 1960-72). Second, the Uniform Crime Reports can also be used to forecast probable changes in the incidence of known crimes, assuming that present conditions--e.g., law enforcement policies and programs, court procedures and decisions, unemployment rates, etc.--remain the same. Third, information on changes in the incidence of known crimes can be used to evaluate existing policies and programs. For example, if special programs are established to reduce the incidence of forcible rape, information in the Uniform Crime Reports may help to assess how well such programs are performing over time. Lastly, by assessing the results of a given program and forecasting its probable results in the future it may be possible to make recommendations about the continuation, termination, or adaptation of that program.

Thus, for example, by calculating the percentage increase in various crimes between 1960 and 1972 (see Table 3.1) we will find that the highest increases are in categories of robbery (246%), larceny (226%), and forcible rape (144%). This kind of information can assist in monitoring the consequences of policy actions (e.g., rape prevention programs), in evaluating policy outcomes (e.g., we might regard any increase in armed robbery as unacceptable policy performance), in forecasting alternative courses of action (e.g., the greatest increases are likely to be in categories of forcible rape, armed robbery, and larceny, the least in categories of murder, aggravated assault, and auto theft), and in recommending appropriate courses of action to resolve problems of crime (e.g., heavy expenditures in apprehending murderers may be transferred to other categories).

Figure 3-1 on the following page presents the five policy analytic procedures. These procedures are closely related and dependent upon each other. From studying this figure it should become clear that in policy analysis some analytic procedures are prerequisites of others. The foremost step in any public policy analysis is the identification of the problem. Once the problem has been identified it is essential to monitor the consequences of policy actions. Monitoring provides information about policy outcomes; it is only when information about policy outcomes is available that one can evaluate these outcomes. Results of evaluation, also, permit the policymaker to forecast policy actions in the future. The recommendation of courses of action, which is the last procedure, requires procedures of problem identification, monitoring, evaluation and forecasting.

Prerequisite Policy-Analytic Procedure	Policy-Analytic Procedure
Problem Identification	Monitoring (e.g., increases in crimes between 1960 and 1972)
Monitoring	Forecasting (e.g., probable increases in crimes between 1972 and 1980)
Monitoring Forecasting	Evaluation (e.g., assessments of acceptable levels of performance--increase, decrease, no change--in 1960-72 and 1972-80)
Problem Identification Monitoring Forecasting Evaluation	Recommendation (e.g., choosing among alternative programs on the basis of information about actual increases in 1960-72, probable increases in 1972-80, and evaluations of actual and probable performance)

FIGURE 3-1

Policy-Analytic Procedures and Prerequisites

STUDY QUESTIONS

Answer each of the questions that follow:

1. What is the relationship between monitoring, forecasting, evaluation, and prescription, on the one hand, and the kinds of statements (descriptive, predirective, prescriptive, evaluative) which are made about public policies?

2. Why can monitoring be described as "inductive" and "practical?"

3. How might different guiding research interests (progressive vs. conservative) and foci of explanation (order vs. conflict) affect the ways that policies are monitored?

4. What essential differences might there be in attempts to monitor outcomes of policy actions taken to resolve ill-structured problems, as distinguished from well-structured ones?

MEASURING POLICY OUTCOMES AND ACTIONS

The discussion of monitoring should have already alerted you to the importance of systematic procedures for obtaining information about the consequences of policy actions. To monitor public policies in a number of issue-areas--e.g., crime, pollution, health and welfare, employment, inflation--requires information which is relevant, reliable, and valid. If we want to know about the consequences of programs designed to provide greater educational opportunity we will require information on the number of children from poor families who are completing school, and not information about total school enrollment. We will, also, want to know how much error there is in any information available on policy outcomes. For example, we know that information on crime is unreliable by a factor of about 2.5:1--i.e., there are some two to three times more crimes actually committed than reported. Finally, we also want to know whether information on policy outcomes is actually measuring what we think it is--i.e., whether it is valid information. If we are interested in violent crimes, for example, information on increases in crime in general (which includes large increases in white-collar crimes and auto theft) will not be a valid measure of the kinds of policy outcomes in which we are interested.

There is a large volume of information available on consequences of policy actions. This information is collected at various points in time at a huge cost to federal, state, and local governments, as well as private organizations. Some of this information is relatively general--e.g., information about changes in social and demographic characteristics of the population as a whole--and some is more specific, since it is concerned with characteristics of states, regions, local communities, and public and private agencies. Consider, for example, the following sources of information on policy outcomes:

Historical Statistics of the United States
Statistical Abstract of the United States
United States Census of Population by States
The County and City Data Book
The Municipal Yearbook
U.S. Census of Manufacturers

Moody's Industrial Manual

Fortune Magazine Directory of 500 Largest Corporations

The Economic Almanac

Labor Fact Book

Who's Who in America

Who's Who in the East

Who's Who in Commerce and Industry

Who's Who in Labor

World Handbook of Political and Social Indicators

Congressional Quarterly

Law Digest

Current Opinion (Public Opinion Polls)

Interuniversity Consortium for Political Research (Political Attitudes and Behavior)

National Technical Information Service

Center for Coordination of Research on Social Indicators

In addition to the above sources, federal, state, and local governments produce reports on particular programs in areas of education, health, employment, consumer prices, crime and other areas. Finally, there is a large stock of books, monographs, articles, and reports produced by universities and research institutes around the country.

Despite this large volume of information collected at high costs to society, we still do not have adequate information on policy outcomes. One of the major reasons for this inadequacy is that the bulk of available information is often general in nature, while the information requirements of monitoring consequences of policy actions are specific. We often wish to know how particular groups are affected by particular policies or programs (e.g., how the urban poor are affected by manpower training), but existing sources of information may be inadequate, unreliable, or invalid. For this reason a variety of special approaches to monitoring have been devised to improve information about policy outcomes.

In order to obtain information about policy outcomes one must monitor the consequences of policy actions; and to employ the policy-analytic procedure of monitoring one must be able to measure at least two different kinds of outcomes: policy outputs and policy impacts. Policy outputs refer to the amount of work effort, or activity required to provide goods or services to target groups. For instance, per capita welfare expenditures, units of service provided to the aged, or the workload of municipal recreation agencies are examples of policy outputs. By contrast, policy impacts refer to the degree to which expected changes in a policy environment are actually accomplished. For example, the number of persons leaving public assistance rolls, the number of elderly who are integrated into the life of the community, and the physical appearance and safety of parks and other recreation areas are examples of policy impacts. The impact of a policy or program includes several kinds of consequences: (1) its consequences for a particular target group, condition, or situation; (2) its consequences for groups, conditions, or situations other than the target (unintended consequences, both positive and negative); and (3) consequences for present as well as future target groups, conditions, or situations.

In order to obtain information about these two types of policy outcomes we must also monitor policy actions--i.e., the behavior of persons engaged in organizing, staffing, coordinating, directing, controlling, and budgeting policy and program activities. Again, there are two major types of policy actions: policy inputs and policy processes. Policy inputs refer to the money, time, personnel, supplies, and other resources used to accomplish given levels of work, effort, or activity. Policy processes, by contrast, refer to the structural, behavioral, or attitudinal characteristics which explain why a policy or program attains given levels of output or impact. For example, decentralization of agency services, conflict among agency personnel, and low morale of program staff may explain why policies and programs which have the same inputs result in different outputs and impacts. The important point is not to confuse policy outcomes (impacts and outputs) and policy actions (inputs and processes). To do so "has been compared to the measurement of the number of times a bird flaps its wings without any attempt to determine how far the bird has flown" (Suchman, 1967:61).

One of the most important aspects of monitoring is measurement. Measurement refers to the assignment of numerals to events or conditions according to particular rules. In general, there are two kinds of numerals: those that have quantitative meaning--and may be added, subtracted, multiplied, and divided--and those that do not. Numerals that do not have quantitative meaning are codes or categories that have the form of natural dichotomies (male/female) or polytomies (Black/White/Puerto Rican/Oriental). A dichotomy is a set of two mutually exclusive categories; a polytomy is a set of three or more such mutually exclusive categories. Two examples of polytomies are the numerals used to identify football players and those used to identify persons registered in the Social Security Program. Numerals are used to identify players or registrants, but not to rank them in terms of any characteristic. It makes no sense to add these numerals to obtain a total sum, or to divide such a sum to obtain an average.

Numerals which have quantitative meaning are called numbers. These can be added, subtracted, multiplied, and divided. For example, we may wish to use numbers to add the dollar incomes of individuals in a particular community, subtract from this total the dollar amounts paid in taxes, and divide by the number of individuals in the community. This would give us a measure of average disposable personal income. If we multiply by 4 (i.e., the average family size) we obtain a rough measure of disposable family income.

There are four levels of measurement used to monitor the consequences of policy actions: nominal, ordinal, interval, and ratio. Ratio-level data have a true zero point and equal intervals and may be used for all arithmetic operations. Data on personal income are ratio-level data, since low income means no income and the distance from $50-100 is the same as the distance from $2,450 to $2,500. Interval-level data, by contrast, do not have a true zero point, although intervals between units are equal. Air pollution indices, for example, tell us that a distance from 20.0 to 40.0 is the same as 40.0 to 60.0, yet 60.0 is not three times as high as 20.0, because there is no true zero point (i.e., 0.0 is not the equivalent of "no pollution," any more than 0^{o} Fahrenheit is "no temperature). One may add and subtract interval-level data, but division and multiplication are possible only when exercising great caution. Ordinal-level data neither have a true zero point nor equal intervals--strictly speaking, none of the arithmetic operations are appropriate, although it is possible to perform such operations when care is exercised in interpreting results. Examples of ordinal-level data include measures of occupational status, quality of life, job satisfaction, and data from a variety of educational and psychological tests. Strictly speaking, the only operations possible are comparisons of more than, less than, and equal to relationships. *Nominal-level* data do not permit even comparisons of relative rank (i.e., more than, less than, equal to relationships). For example, county and district codes used in many states--i.e., numerals assigned simply to identify the county or district--obviously do not permit addition, subtraction, multiplication, or division.

Levels of measurement are important mainly because our success in obtaining information depends on how well we are able to construct reliable and valid measures of outcomes and actions. One way to construct measures is to begin by indentifying the variables which we are interested in studying. A *variable* is any characteristic of an event or condition which takes on different numerical values. For example, policy impact variables include educational opportunity, public safety, and air cleanliness. The difficulty with much policy analysis, however, is that we do not have precise definitions of variables. Variables have constitutive and operational definitions. *Constitutive definitions* assign meaning to the words we use to describe variables by using other words. Such definitions are sometimes called "dictionary" definitions because they use synonyms to define particular words. For example, "educational opportunity can be defined as "the freedom to choose learning situations appropriate to one's abilities." Obviously such definitions, while necessary, are not sufficient to provide us with information about policy outcomes, since they do not provide a link with the "real world." An *operational definition* assigns meaning to a variable by specifying the operations that are required to measure the characteristic. Operational definitions specify the kinds of activities that census enumerators, program personnel, or researchers use to measure particular characteristics. For example, "educational opportunity can be defined operationally as "the number of children from poor families who enroll in colleges and universities." This operational definition of educational opportunity is clearly superior to the constitutive definition ("the freedom to choose learning situations appropriate to one's abilities") provided above.

Operational definitions, while clearly superior to constitutive definitions in their capacity to provide information about policy outcomes, do not directly measure such variables as educational opportunity, public safety, or public health. Rather we use indicators of variables--i.e., an observable characteristic such as school enrollment, reported crimes, or the incidence of various kinds of illness which are substituted for less observable (and sometimes non-observable) characteristics of a policy environment. An index is a combination of two or more indicators, a kind of summary of information about an outcome variable of special interest. For example, an index of poverty can be constructed from several indicators: caloric intake per capita, percent of population below $3,000 annual family income, and the share of total national income earned by the lowest fifth of the population. One of the great advantages of economic and social indicators is that they permit us to measure policy outcomes over time (longitudinal monitoring) as well as to compare policy and program activities in different locations (cross-sectional monitoring).

In monitoring the consequences of policy actions in various issue-areas one can identify the policy problem and specify the kinds of indicators we will use to measure output, impact, process, and input variables. An example has been provided below (Table 3-2).

TABLE 3-2

Indicators Available to Monitor Outcome and Action Variables

Policy Problem	Outcome Variables		Action Variables	
	Outputs	Impacts	Processes	Inputs
Reduction of Poverty	Welfare Expenditures Per Recipient	Standard of Living for Welfare Recipients	Educational Levels of Community Workers	Program Expenditures
Quality of Working Life	Recreational Facilities Per Employee	Self-Esteem of Employees	Employee Participation in Agency Decisions	Expenditures on Recreation Equipment
Crime Prevention	Criminals Apprehended Per 100,000 Known Crimes	Criminals Convicted Per 100,000 Actual Crimes	Number of Illegal Arrests	Expenditures for Police
Improved Municipal Waste Disposal	Hours Worked By Sanitation Workers	Cleanliness of City Streets	Morale Among Sanitation Workers	Expenditures for Sanitation Workers and Equipment

The ultimate purpose of measuring outcomes is to relate any given change in policy outputs and impacts to policy actions. Hence, expenditures (inputs) and the structure, behavior, and attitudes of program personnel achieve given objectives (outputs and impacts) better than others. While unit 6 will examine the policy-analytic procedure of evaluation in greater depth, it is important to note here that information about policy actions and outcomes allows us to measure: (1) the effort put into a program (inputs); (2) the effectiveness of a program in attaining objectives (outputs and impacts); and (3) the efficiency of a program in attaining objectives with given levels of effort (outputs or impact, divided by effort).

5. List several advantages of being able to describe policy outcomes and impacts with continuous measures (i.e., ordinal, interval, and ratio data).

6. Monitoring involves the generation of experience. In this regard, what is the importance of operational definitions in generating such experience?

7. Much of the information on policy outcomes reported in the mass media is based on constitutive definitions of actions, events, and conditions. What problems does this raise?

8. List two or three indices which are readily available for purposes of monitoring the outcomes of various public policies. Of what specific indicators are these indices composed? How are these individual indicators combined to form the index?

9. In what ways do indicators of outcomes and actions differ? How do these differences affect the way that policies are evaluated?

DISPLAYING AND INTERPRETING DATA

There are various ways to analyze information about policy actions and policy outcomes. One of the simplest ways to display and interpret data is to compute their central tendencies--i.e., measure the center of the distribution of a set of data. The mean is a convenient way to summarize the central tendency of a whole set of ratio or interval data. We may wish, for example, to compute the average monthly social security benefits received by retired workers in selected years between 1940 and 1975. We would simply add the total monthly benefits over selected years and divide by the total number of years (i.e., 7 years). This has been done in Table 3-3 below.

TABLE 3-3

Average Monthly Social Security Benefits to Retired Workers in Selected Years, 1940-1975

1940	1950	1960	1965	1970	1972	1975	Mean
$23	$44	$74	$84	$100	$117	$183	$89.29

SOURCE: The Budget of the United States Government, 1975 (Washington, D.C.: Government Printing Office, 1974).

For any set of ratio and interval data we can calculate the mean, median, and mode. The median for Table 3-3 is simply the middle number in the set of seven numbers arranged in ascending order (i.e., $84). The mode is the simplest measure of central tendency and may be found by locating the most frequent number of value in a data set. In Table 3-3 there is no mode, since all values occur with equal frequency, i.e., once each in the seven year period. Table 3-3 is quite simple. Other sets of data are sufficiently complex that the computation of measures of central tendency is essential. Consider the following set of data on federal government expenditures as a percentage of total general expenditures in selected years since 1902 (Table 3-4).

TABLE 3-4

Federal Expenditures as a Percentage of Total Government Expenditures in Selected Years, 1902-1972

Year	Federal Expenditures
1902	35%
1913	31
1922	40
1927	31
1932	34
1936	50
1940	48
1944	91
1946	82
1948	64
1950	64
1952	71
1955	66
1960	62
1962	63
1967	65
1970	66
1972	65

SOURCE: T.R. Dye, Understanding Public Policy (Englewood Clifts: Prentice-Hall, 1975), Table 9-4, 205.

The mean for data in Table 3-4 is 57.1 percent, as compared with a median of 63.5 percent.* In the same table, however, there are four modes comprised of two numbers each in with these values--66%, 65%, 64%, and 31%. All measures of central tendency (mean, median, mode) may be calculated for interval and ratio data. For ordinal data only the median and mode should be calculated, while nominal data permits the calculation of the mode only. The use of a particular measure of central tendency can be important for the interpretation of data on policy actions and outcomes. Someone wishing to argue that the average share of federal government expenditures since 1902 is approximately equal to federal expenditures in the 1960-1972 period (64.2%) would benefit from the selection of the median (63.5%) as the measure of central tendency, rather than the mean (57.1%). At the same time averages of any kind may be misleading, which is one reason that measures of variability are used. One measure of variability is the range--defined as the difference between the highest and lowest numbers in a data set. The range for Table 3-4 is 60%--i.e., 91% (1944) minus 31% (1913). Obviously, the mean, median, and modes of this data set cannot be adequately interpreted without some measure of variability such as the range, which in this case shows that there are large differences between years.**

Much information on policy outcomes and actions--e.g., numbers of persons in target groups, unemployment rates, air pollution indices, levels of government expenditures--is displayed in the form of such tables as those presented above. Another way to display and interpret data is the graph, which is a pictorial representation of data. A graph can be used to show changes in one or more variables over time, or for comparing two or more related variables at one point in time. A graph displays a series of points, each of which marks the coordinates of two different numerical scales. The horizontal scale is called the abscissa (or x-axis), while the vertical scale is called the ordinate (or y-axis). The symbol X is used to designate the independent variable, i.e., that which "explains," "determines," or "affects" another variable. The symbol Y is used to designate the dependent variable, i.e., that which is "explained," "determined," or "affected" by another variable. Since one of our aims in obtaining information about policy outcomes is to explain why policy outputs and impacts differ, we often treat indicators of policy action as independent variables. For example, we may wish to graph the relationship between levels of expenditures for health care and the incidence of certain kinds of illness.

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*Note that if a set of numbers has an even number of elements (i.e., 18 separate years in Table 3-4), the median will be the mean of the middle two numbers (in this case 65% and 63% as the 9th and 10th elements).

**Other measures of variability are the mean deviation, variance, standard deviation, and coefficient of variation. Standard statistics texts (Loether and McTavish, 1975) and guides (Hammerstrom, 1976) provide explanations of such measures.

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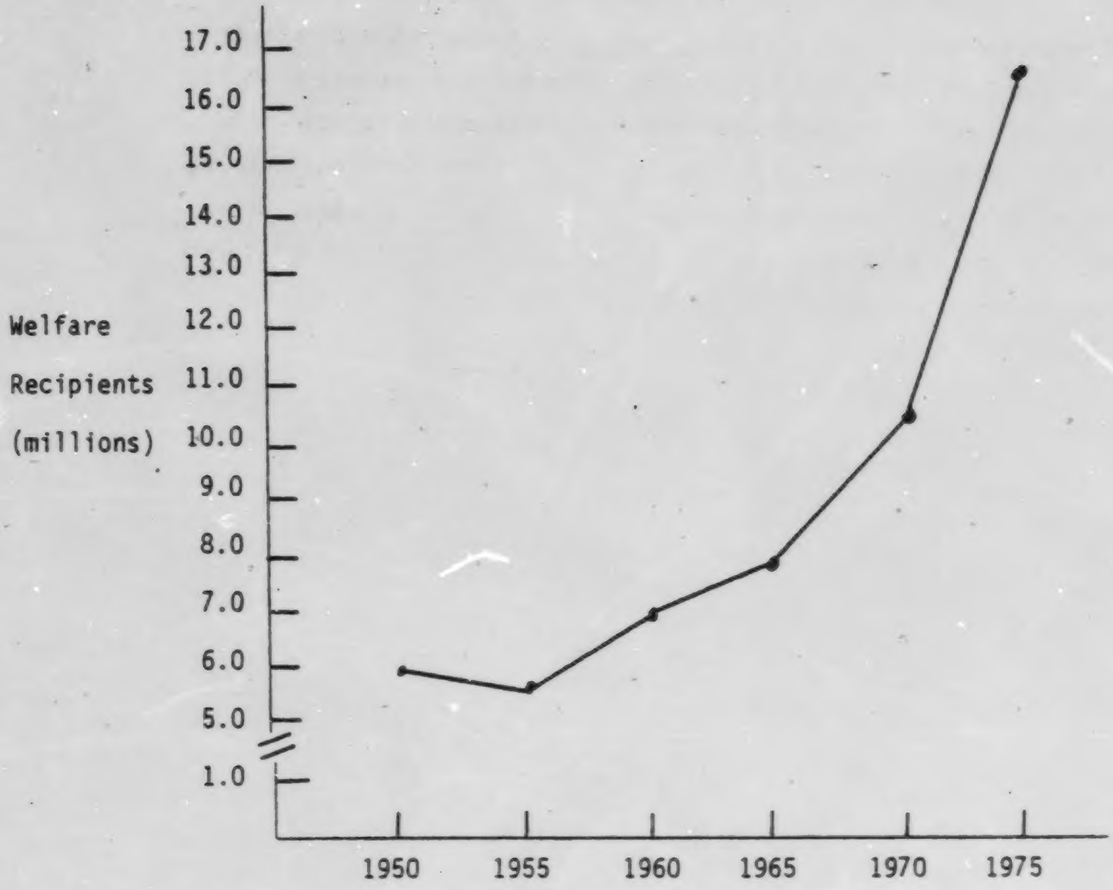
One of the simplest and most useful kinds of graphs displays a policy outcome variable on one axis (the ordinate) and time on the other (the abscissa). If we wish to display information on the growth of public welfare programs in the period 1950-1974, for example, we would construct a graph such as that presented below (Graph 3-1).

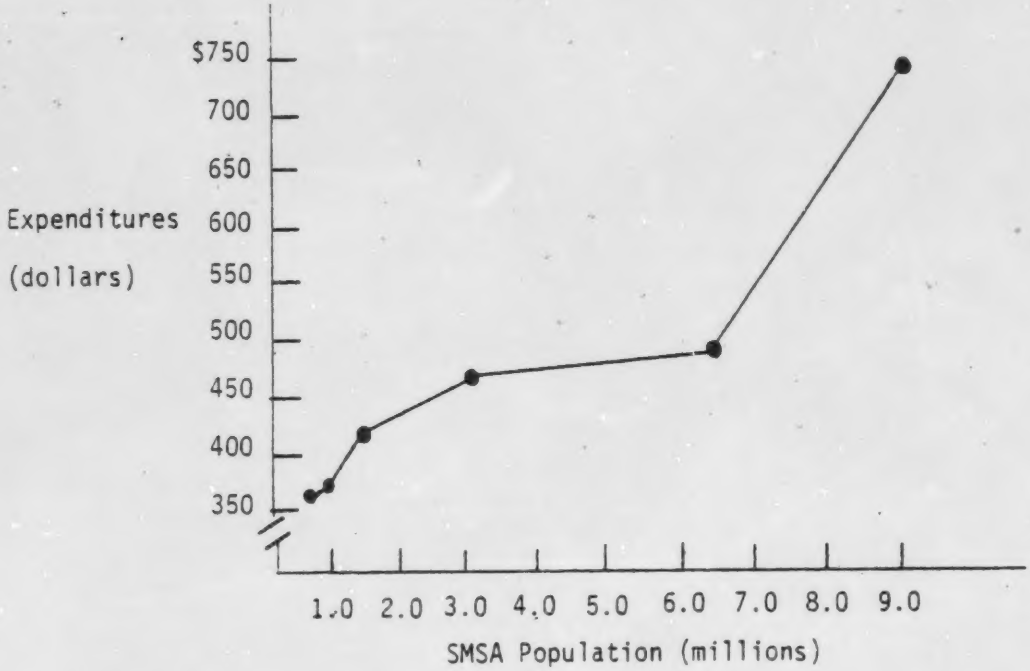


GRAPH 3-1

Growth of Total Public
Welfare Programs: Millions of
Recipients in Selected Years, 1950-1975

SOURCE: Adapted from Dye (1975:129.)

Graphs may also be used to depict relationships between two or more variables (excluding time). One may wish to find out if one variable changes in the same direction as another--i.e., whether the two variables are correlated positively. If one of the variables precedes the other in time (e.g., smoking precedes death from lung cancer) or if there is an available theory which explains the correlation (e.g., the greater the income the greater the propensity to save), then we may wish to assert that there is a causal relationship between the two variables. Otherwise variables are simply correlated--one variable cannot be assumed to be a "cause" of the other. For example, we may wish to display the association between the size of Standard Metropolitan Statistical Areas (SMSA's) and costs of public services per capita, as part of an effort to monitor the "fiscal crisis" of large urban areas. Graph 3-2 below shows a strong positive correlation between city size and the costs of municipal services.



GRAPH 3-2

Population of Standard Metropolitian Statistical Areas by Average Public Service Expenditures Per Capita (1973)

SOURCE: Adapted from T. Muller, Growing and Declining Urban Areas: A Fiscal Comparison (Washington, D.C.: Urban Institute, 1975).

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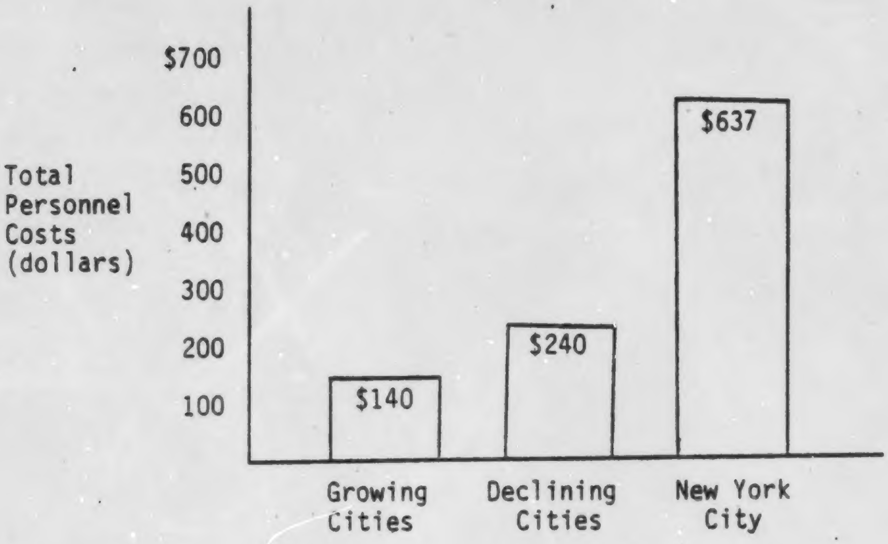
Another way to display and interpret data on the fiscal crisis of cities is the bar graph, which makes comparisons among values expressed along paralled bars placed vertically or horizontally on the graph. The bar graph below (Graph 3-3) displays data on the relationships between total municipal personnel costs per capita in 1973 and the status of urban areas as growing or declining in population in the period 1960-1973.

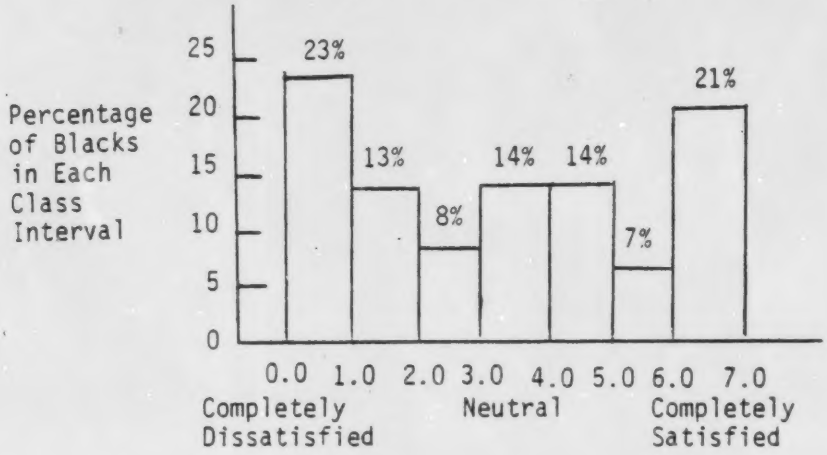


GRAPH 3-3

Total Municipal Personnel Costs
Per Capita (1973) in Cities with Growing
and Declining Populations in 1960-1973

SOURCE: Adapted from Muller (1975).

Another way to display and interpret data is with a histogram, a vertical bar graph which organizes information about the distribution of a variable at one point in time. In a histogram the width of the bars is equal to the distance between intervals along the horizontal axis. There is no space between bars, as in a bar graph, because the scale is a continuous one (there are no discrete groups, as in Graph 3-3). The height of the bars in a histogram represents the frequency of occurence of each class interval (e.g., 0.0 to 1.0) along the horizontal axis. A histogram is one way to depict a frequency distribution, one form of which is the familiar "bell-shaped" or "normal" curve. If we are interested in minority perceptions of the quality of education we may wish to display data on the satisfaction of blacks with the amount of education they have acquired. The histogram depicted in Graph 3-4 below shows that over half of all blacks are dissatisfied or neutral with respect to the amount of education they have achieved. The most frequent responses are in the extreme categories, i.e., completely dissatisfied and completely satisfied.



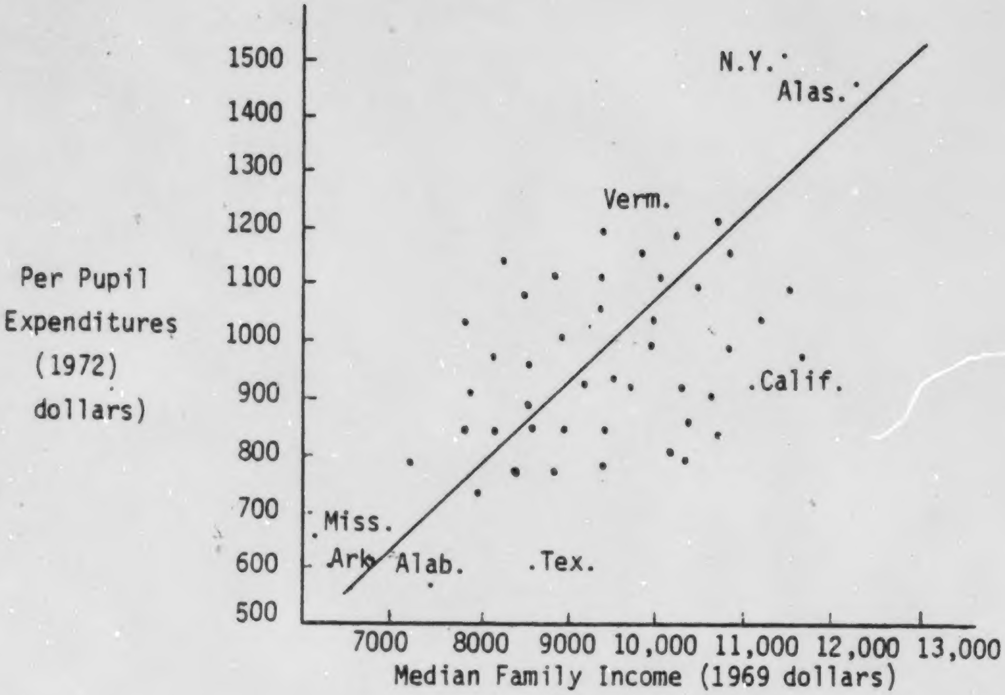
GRAPH 3-4

Distribution of Satisfaction with Amount of Education Among Blacks (N=202)

SOURCE: Adapted from A. Campbell, P.E. Converse, and W.L. Rodgers, The Quality of American Life (1976), 459.

A *frequency polygon* is another way to display data in which class frequencies are plotted on the vertical axis and the *midpoints* of each class on the horizontal axis. Graph 3-4 above can be transformed into a frequency polygon simply by placing points in the middle of each bar and connecting them with broken lines. The essential difference between a histogram and a frequency polygon is that the latter uses a series of broken lines to represent the distribution of a characteristic such as satisfaction with educational achievement.

When a large number of points can be placed on a graph and variables are continuous in nature (i.e., interval, ratio, and in special cases ordinal) it is possible to plot various kinds of *trend lines*. These lines may be "fitted" to the data points visually, although a number of statistical techniques are normally used to approximate the shape of curves. When time is plotted on the horizontal axis, trend lines are excellent means for monitoring and forecasting long-term movements in policy outcomes. Graphs may also be used to display and interpret the relationship between two variables, one of which may be taken as the explanation of the other. Graph 3-5, for example, shows both the profile of data points and a straight line representing a positive relationship between median family incomes and per pupil expenditures in the United States. The graph shows that differences in median family incomes. In analyzing the problem of inequality of educational opportunity this data may have considerable importance in exploring the possibility that social inequalities must be resolved before inequalities of educational opportunity are successfully reduced (Jencks *et al.*, 1972).

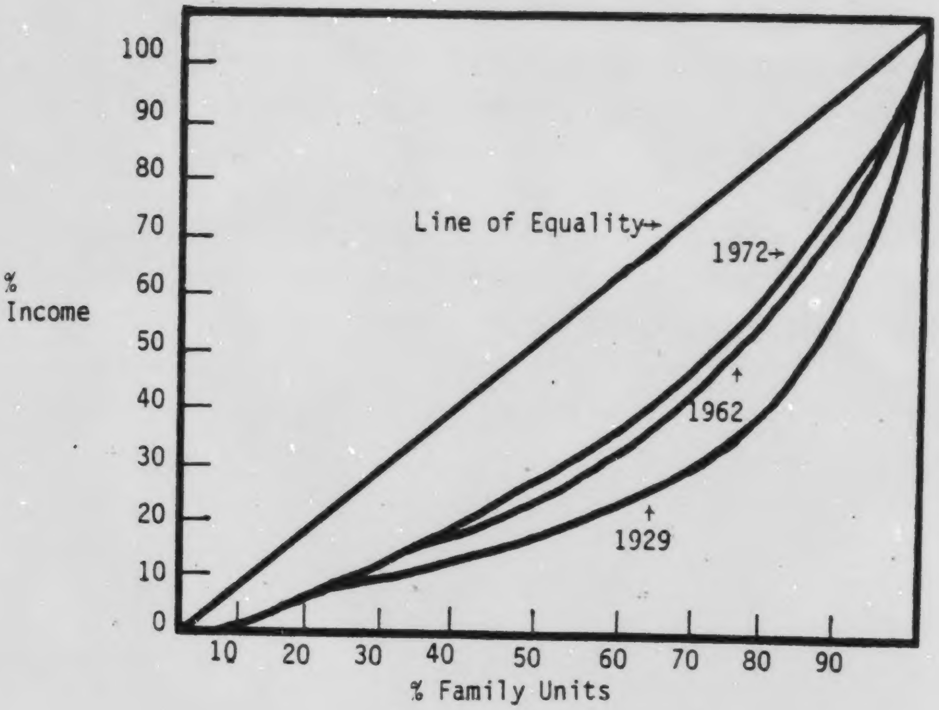


GRAPH 3-5

Per Pupil Expenditures for Education
And Median Family Incomes in the 50 States

SOURCE: Adapted from Dye (1975): 283. The plotting of states is approximate.

A final means for displaying and interpreting data on policy outcomes is the cumulative frequency polygon (curve). The cumulative frequency polygon (curve) is either a broken-line or curve-line graph where the cumulative frequencies of a distribution are plotted along the vertical axis. On the horizontal axis, as one moves from left to right, the first point plotted is the frequency of the first class; the second point plotted is the sum of the frequencies of the first and second classes; and so on to the end of the scale, which is the sum of all the frequencies. In monitoring the consequences of policy actions designed to alleviate poverty, a highly useful cumulative frequency curve is the Lorenz Curve, which displays the distribution of income in a given population (e.g., the country as a whole, a region, or a community). A Lorenz Curve enables us to compare the share of total income accounted for by each successive percentage of the population. These successive percentages of the population are measured in terms of quintiles or deciles--i.e., classes or groups comprised of one-fifth or one-tenth of the population, which are ordered from lowest to highest in terms of their share of total income. In graph 3-6 below the Lorenz Curve enables us to compare the distribution of income in the United States at three points in time. As the curve moves closer to the diagonal (line of equality), income becomes more equitably distributed, with total equality represented by the line of equality. While graph 3-6 provides a time comparison, the Lorenz Curve can also be used for spatial comparisons of countries, states, regions, or communities. An additional advantage of the Lorenz Curve is that it is easily converted in the Gini Index of inequality, which measures the area between the line of equality and the curve. As this area becomes smaller, so does income inequality. The Gini Index ranges from 1.0 (perfect inequality) to 0.0 (perfect equality).



GRAPH 3-6

Cumulative Distribution of
Family Income in 1929, 1962, and 1972

SOURCE: Adapted from Dye (1975:98).

10. List the appropriate measures of central tendency for each of the four levels of measurement: nominal, ordinal, interval and ratio.

11. List the different ways to display data on a particular policy outcome (e.g., public assistance benefits in constant dollars).

APPROACHES TO MONITORING

The systematic collection of relevant, reliable, and valid information on policy outcomes is one of the most important aspects of policy analysis. Nevertheless, it may be difficult to see how monitoring is actually carried out by program administrators, policy analysts, and social researchers who investigate policy problems. Fortunately there are several identifiable approaches to monitoring, each of which employs different methods to obtain information about policy outcomes. In this section we will briefly examine four such approaches: social accounting, social auditing, social experimentation, and social research cumulation.

In the mid-1960's a number of social scientists and policy-makers began to advocate an approach to monitoring policy environments which often goes by the name social systems accounting (Gross, 1966). Social systems accounting is a set of methods whereby changes in various events and conditions may be systematically monitored over time. Sometimes social systems accounting includes special efforts to monitor particular conditions in society--e.g., the quality of working life (Davis and Cherhs, 1975; Report of the Special Task Force to the Secretary of Health, Education, and Welfare, 1972), or the quality of life in municipal areas (Flax, 1972, 1974; Urban Institute, 1974). In one way or another each of these efforts uses social indicators--i.e., quantitative and qualitative measures of changes in social conditions--to monitor society's progress in attaining certain goals and objectives. One of the basic assumptions of social systems accounting is that the monitoring of social conditions is equally important as the monitoring of economic conditions. For this reason many persons have advocated the preparation of a "Social Report" comparable to the President's Annual Economic Report to the Nation. In 1969, for example, the Department of Health, Education, and Welfare published a volume entitled Toward a Social Report. Since 1973 the Department of Commerce has published an annual compilation entitled Social Indicators.

An examination of the types of social indicators used for purposes of social systems accounting suggests the broad range of policy outcomes which can be monitored with this approach. In effect, social indicators are used to monitor progress in achieving certain values or fulfilling certain needs--i.e., to determine the extent to which policy problems are being resolved. Table 3.5 presents such indicators, their observed values in selected years, and their expected values in terms of objectives set for 1980.

TABLE 3-5

Selected Social Indicators:
Observed and Expected Values

Indicator	Observed Value	Expected Value (1980)
Overall Life Satisfaction (% persons moderately to completely satisfied)	82.0% (1975)	Increase
Persons in State Mental Hospitals	426,000 (1967)	50,000
Three-to Five-year Olds in School or Preschool	35.2% (1967)	95%
Persons 25 and Older who Graduate from High School	51.1% (1967)	65%
Handicapped Persons Rehabilitated	208,000 (1968)	600,000
Average Weekly Workweek (Manufacturing)	40.6 (1967)	37.5
Labor Force Participation Rate for Women (aged 35-64)	48% (1967)	60%
Average Annual Paid Vacation (Manufacturing)	2 weeks (1967)	4 weeks
Percent of Population Below Poverty Level	12.8% (1968)	0.0
Income of Lowest Fifth of Population	5.3% (1967)	10.0%
Persons Employed	88 million (1967)	110 million

SOURCE: Adapted from U.S. Department of Health, Education, and Welfare, Toward a Social Report (Ann Arbor: University of Michigan Press, 1970); and A. Campbell, P. Converse, and W. Rodgers, The Quality of American Life (New York: Russell Sage Foundation, 1976). Expected values set for 1980 are subjective estimates.

The use of social indicators has several positive consequences. First, the attempt to select indicators appropriate for monitoring can result in the recognition that we do not have sufficient information on the outcomes of public policies. While much progress has been made in systematically acquiring information on policy outcomes, it is still often difficult to obtain sufficient information to find out whether programs are achieving their intended impact on target groups. (Rivlin, 1971) Second, when information is obtained on policy outcomes, particularly in terms of impacts on target groups, we can evaluate and modify public policies and programs. There is a direct link between the adequacy of social indicators and the quality of information about policy performance. Finally, social indicators can assist in providing information with which to identify new policy problems and policy alternatives. Social indicators thus provide information with which to monitor the consequences of policy actions, evaluate different types of outcomes, and identify new policy problems and alternatives.

Among the many criticisms of social indicators, several deserve special attention. First, it has been observed that the very choice of certain indicators (e.g., those to measure income distribution) reflects political biases and value judgments. (Dye, 1975:336) This is certainly true; it is also normal, given that the very identification of policy problems is subjectivistic and artificial. Hence, new social indicators are no more "biased" than those which have been used in the past (e.g., Gross National Product, productivity, unemployment). Second, social indicators may not be directly useful to policy-makers in choosing different courses of action. In fact, there is some evidence that social indicators are not perceived by policy-makers to have great instrumental value--i.e., it is difficult to use the kinds of general information contained in social indicators to make concrete decisions about specific programs. (Caplan et al., 1975) This criticism, while no doubt important, overlooks that one of the main functions of social indicators is to identify new problems, rather than provide clear guidelines for their solution. A third criticism of social indicators deals with the type of indicators which are used. (Singh, 1975) Most indicators seek to measure objective conditions (e.g., income distribution), often neglecting the subjective perceptions of individuals and groups. Hence, what may be important is not so much that income inequality is diminishing, but rather how such changes are perceived as such by groups with a strong sense of social injustice and rising expectations. In other words, people are not only deprived in terms of absolute differences in income or other resources, but relatively in terms of their own perceptions of themselves in relation to others. Lastly, the assumptions underlying the use of social indicators have been challenged on grounds that they reflect a commitment to "big government," "totalitarianism," or the "invasion of privacy." While such criticisms may have some validity, efforts to develop social systems accounting are chiefly a response to problems of formulating public policies in complex post-industrial policy environments. Efforts to avoid the systematic collection of information are not likely to contribute to the resolution of contemporary problems: pollution, poverty, drug addiction, declining satisfaction with life and work, inequality of life chances for minorities and women, mental illness, dropping out of school. Such criticisms often mistake symptoms for the problem.

One of the shortcomings of social systems accounting--mainly, that the kind of information generated is often too general to be directly useful to policy-makers--is to some extent compensated for by social auditing. In social auditing the inputs of a particular policy or program "are traced from the point at which they are disbursed to the point at which they are experienced by the ultimate intended recipient of those resources." (Coleman, 1972:18) Social audits may provide specific information on policy and program outcomes, such that the inability to achieve a given policy objective may be traced to two factors (Smith, 1975:306): (1) resource inputs (program personnel, person-hours, services, money) may have been insufficient; or (2) they may not have reached target groups. While the social audit does not provide adequate information on policy and program impacts, it does provide measures of outcomes which "tell whether the resources are available at point of use, and if they are not, where and how they got lost." (Coleman, 1972:19) An additional advantage of the social audit, as compared with social accounting, is that it helps to focus on specific policy actions and outcomes within the definable contexts of particular agencies, rather than society in general. Nevertheless, the relative specificity of social audits can also be problematic, since it is generally more difficult to acquire information for social auditing purposes than to compile social indicators from available public records.

One of the central features of social accounting and social auditing as approaches to monitoring is that they occur after a policy or program has been implemented. One of the consequences of monitoring policies after the fact is that it may take a very large number of successes and failures to find out what works best and why. Rivlin (1971) has characterized such ex post facto approaches as "random innovation," i.e., a process of unsystematically formulating and executing new policies and programs whose outcomes cannot easily be traced back to policy actions over which there is direct control. Random innovation may be contrasted with "systematic experimentation," which is a method of social innovation which seeks maximum control over policy actions (inputs and processes) and the conditions under which they are undertaken. The essential feature of social experimentation as an approach to monitoring is that it occurs before policies are recommended as solutions to given problems. Fairweather (1967) and others (Caporaso and Roos, 1973) have advocated social experimentation as a means of solving social problems by investigating the probable outcomes of policies in selected demonstration projects. In other words, social experiments are conducted prior to the commitment of resources to large and costly new programs whose consequences cannot be predicted in advance.

As an approach to monitoring, social experimentation closely follows methods used in classical scientific experiments. (1) There is direct control over experimental stimuli (policy actions) and the conditions under which they are implemented (different target groups with known characteristics). (2) At least two groups are monitored. One, the "experimental" group, receives the stimulus or "treatment" (e.g., certain services), while the other--the "control" group--receives another stimulus (e.g., less services) or no stimulus at all. (3) Attempts are made to select target groups randomly, so that possible biases in selection are reduced. Lastly, (4) precise measurements are made, such that any differences in the responses of the experimental and control groups may be monitored and used as a basis for formulating policies in the future.

Perhaps the best known social experiment is the New Jersy-Pennsylvania Graduated Work Incentive Experiment, funded by the Office of Economic Opportunity as "an attempt to use the experimental method to answer some of the policy questions that surrounded welfare reform in the mid-1960s." (Rivlin, 1971:94) A random sample of able-bodied men aged 15 to 58 from low-income families was selected from three sites in New Jersey (Trenton, Patterson-Passaic, and Jersey City) and one in Pennsylvania (Scranton). In each city some families received various combinations of guaranteed annual income levels and tax breaks, while others received no payment whatsoever. Altogether, some 1,350 families participated in the experiment.

Many critics of welfare programs expected that income supplements and tax breaks (negative income tax) would induce low-income families to work less. This expectation, which derived in part from popular myths about the poor, was not substantiated by the experiment. The main result of the experiment was that the experimental (income maintenance) and control groups (no income maintenance) did not differ in their employment patterns, as reflected by changes in earnings over the period of the experiment. In fact, as Table 3-6 shows, the earnings of the experimental group increased slightly as compared with the control group.

TABLE 3-6

Effects of Income Maintenance on Earnings
of 400 Low-Income Families in New Jersey

	Groups	
Family Earnings	No Income Maintenance (Control)	Income Maintenance (Experimental)
Increased	41.0%	43.0%
No Change	29.0	28.0
Decreased	30.0	29.0
	100.0	100.0

SOURCE: A. Rivlin, Systematic Thinking for Social Action (Washington, D.C.: The Brookings Institution, 1971), 100. The computation of changes in family earnings excludes government payments to the experimental group.

Social experiments such as those conducted in New Jersey, Pennsylvania, and other states have the advantage of being able to show that is was certain policy actions (e.g., income maintenance)--and not the characteristics of target groups or their surroundings--that resulted in given outcomes (e.g., no changes in employment behavior). This feature of experiments is often described as *internal validity*--i.e., the degree to which particular results can be attributed with confidence to experimental treatments or stimuli. At the same time social experiments also have shortcomings and weaknesses. They often lack *external validity*--i.e., their results are difficult to generalize to other situations--mainly because the effort to conduct the experiment itself results in special conditions. Hence, persons may behave as they do because they know they are participating in an experiment. Similarly, the more scientifically controlled the experiment, the less likely that conditions established during the experiment will actually be found in "real-life" or "natural" settings. Finally, there are ethical questions associated with social experimentation. It may well be unethical, for example, to provide some groups with money or services, while withholding the same benefits from others.

A final approach to monitoring is what we might call *social research cumulation*--i.e., the systematic compilation and comparison of results of past research on policy outcomes and actions. Here, the assumption is that it may not always be necessary to engage in social accounting, social auditing, and social experimentation in order to obtain information on the affectiveness of a given policy. Rather we may be able to use the results of past research efforts to determine how a given policy worked in *similar* circumstances. While it is true that many policies have never been tried before--and hence we cannot monitor outcomes before actions have been taken--it is true that a large stock of knowledge is available on policy processes, organizational structures and behavior, policy outcomes and impacts, and other facets of policymaking. Social research cumulation has two principal benefits. First, it provides us with various *theories* and *models* of policy action and policy outcomes (see Bower, 1968; Gergen, 1968; Schoettle, 1968; Lowi, 1968, 1972; Dye, 1975). Such theories and models can be helpful in thinking about the kinds of policy outcomes which might occur under different conditions included within theories and models. Thus, for example, theories of communication may suggest that maximum policy impact in social service delivery programs occurs when service workers and clients have similar social background characteristics (age, race, social status, education). A second benefit to be derived from social research cumulation is the empirical generalizations about policy outcomes and actions present in situations similar to those in which we are interested. For example, a recent compendium of empirical generalizations derived from over 1,000 research projects provides us with information on policy and program outcomes, as well as action guidelines and principles for planning and organizing social change. (Rothman, 1974)

12. Compare and contrast social experimentation and social accounting in terms of the degree of control over policy instruments, the validity of generalizations about policy outcomes, and the ethical implications of each approach.

13. Compare and contrast "random innovation" and "systematic experimentation." What are the strengths and weaknesses of each approach?

14. Under what circumstances might "random innovation" be a better approach then "systematic experimentation"? Specifically, what are the implications of the notion of "ill-structured problems" for this question?

SOME FALLACIES OF MEASUREMENT

This unit has stressed the importance and desirability of employing precise measures of policy outcomes and actions. Systematic measurement procedures can be advantageous, but they can also be abused. In this final section we shall, therefore, review several of the major fallacies encountered in efforts to monitor the consequences of policy actions:

1. Aggregative Fallacy. The attempt to draw conclusions about individual behavior or attitudes on the basis of group (aggregate) data. For example, in monitoring changes in public assistance programs one may fallaciously conclude that increases in welfare rolls over time reflect a decline in individual willingness to work, or changes in the work ethic, when the real explanation of the increase is rising unemployment rates and the breaking down of extended families.

2. Individualistic Fallacy. The attempt to draw conclusions about group (aggregate) behavior or attitudes on the basis of knowledge about individuals. For example, in monitoring the impact of racial integration in public schools, it may be found that individual white and black children are generally satisfied with school integration. The same children may nevertheless develop widely different attitudes as classes change from a relatively homogeneous to a relatively heterogeneous racial composition. Individual attitudes change in group situations.

3. Fallacy of Misplaced Precision. The attempt to claim validity for one's findings by using statistics and mathematical formulations may obscure the fact that data are unreliable or invalid. For example, in monitoring crime and heroin addiction in New York City it was reported that addicts steal from $2 billion to $5 billion in goods annually to support their habit. Upon careful review of these figures it was found that analysts had multiplied an estimated 100,000 addicts by an estimated habit of $30 per day. The resulting $1.1 billion was then multiplied by a factor of 4, since stolen goods are typically sold at one-quarter their real value. The known value of all goods stolen per year does not approach $4.4 billion, suggesting either that there are far fewer addicts or that addicts steal less frequently than believed.

4. Fallacy of Pseudo-Proof. Efforts are made to claim validity for findings where there is no sound scientific basis for doing so. For example, in monitoring the consequences of policy actions in the 50 states, it is found that those states with competitive party systems allocate more of their budgets to social welfare and education than states with non-competitive party systems. Subsequently, it is discovered that it is the level of economic development of states that affects patterns of expenditures as well as party competition. In effect, the correlation between party competition and expenditures was spurious--i.e., only apparent but not real.

Monitoring, as we have seen, plays an essential role in generating information about policy outcomes. Only by systematically describing the consequences of policy actions can we know whether a given policy is achieving its stated objectives. Monitoring requires precise measurement, careful definitions of relevant variables, and skills in the presentation and interpretation of data. Systematic monitoring procedures may be used to great advantage; they may also be misused, resulting in various fallacies of measurement. In either case, however, monitoring is essential for the policy-analytic of forecasting, which we shall consider in the next unit.

15. Provide illustrations from your own experience of each of the fallacies associated with the measurement of policy outcomes and actions.

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SELF-TESTING EXERCISE

1. The use of the Consumer Index to describe changes in prices over time is a good example of:

    (a) evaluation
    (b) forecasting
    (c) monitoring
    (d) recommendation

2. "Monitoring is to forecasting as recommendation is to evaluation."

    (a) True
    (b) False

3. "Monitoring is to forecasting and evaluation as forecasting and evaluation are to recommendation."

    (a) True
    (b) False

4. Monitoring involves:

    (a) value premises
    (b) factual and value premises
    (c) factual premises

5. The choice of indicators used to monitor policy outcomes is and can be wholly objective:

    (a) True
    (b) False

6. The median is the appropriate measure of central tendency for:

    (a) interval level data
    (b) nominal level data
    (c) ordinal level data
    (d) ratio level data

7. A constitutive definition provides an unambiguous rule for linking concepts with observations:

    (a) True
    (b) False

8. "Satisfaction with sanitation services was defined as perceptions of adequacy of waste collection, which was measured by responses to questions asked by interviewers." This statement contains:

    (a) an operational definition only

    (b) constitutive and operational definitions

    (c) a constitutive definition only

    (d) no adequate definition

9. An indicator of policy or program input might be:

    (a) salaries of program personnel

    (b) person-hours devoted to program activity

    (c) volume of services produced

    (d) quality of services provided

    (e) all of the above

    (f) a and b

    (g) a, b, and c

10. Effectiveness generally refers to the degree to which preferred policy outcomes are realized. Efficiency, by contrast, generally refers to:

    (a) the amount of effort expended

    (b) the costs of a policy or program

    (c) the quality of a policy or program

    (d) the ratio of effectiveness and effort

11. In monitoring the consequences of actions taken under a tax reform program designed to reduce inequalities in the distribution of income we would most likely want to use the:

    (a) Gini Index

    (b) Consumer Price Index

    (c) Cost-of-Living Index

    (d) Index of Unemployment

12. Data may be presented in tables which have one or more dimensions. The kinds of data which are displayed include means, medians, and modes.

    (a) True

    (b) False

13. Calculate the mean, median, and mode for the following set of data:

EXPENDITURES OF STATE GOVERNMENTS AS
A PERCENTAGE OF TOTAL GOVERNMENT
EXPENDITURES IN THE U.S., 1902-72

Year	State Expenditures as % of Total
1902	6%
1913	9
1922	11
1927	13
1932	16
1936	14
1940	15
1944	3
1946	6
1948	13
1950	12
1952	9
1955	11
1960	13
1962	12
1967	12
1970	12
1972	13

SOURCE: Adapted from Dye (1975:205).

Mean:

Median:

Mode:

14. A Lorenz Curve is a good example of a:

(a) Bar Graph

(b) Cumulative Frequency Curve

(c) Histogram

(d) Broken-line Graph

15. A social experiment typically involves attempts to manipulate input and process variables under scientifically controlled conditions.

    (a) True
    (b) False

16. Social experiments often have high _____________ validity, but low _____________ validity.

17. The acquisition of information to conduct a social audit--as compared with social accounting--is generally:

    (a) less difficult
    (b) more difficult
    (c) equally difficult

18. "Per capita income in the United States has grown steadily over the past three decades. This reflects increasing individual satisfaction with the quality of life." This conclusion is an example of the

    (a) individualistic fallacy
    (b) fallacy of misplaced precision
    (c) fallacy of pseudo-proof
    (d) aggregative fallacy

ASSIGNMENTS

1. Construct constitutive and operational definitions for any five (5) of the following outcome variables. Note that a sample answer has been provided in the first row.

Variable	Constitutive Definition	Operational Definition
Program Expenditures	The monetary value of inputs into a program in a given time period.	Dollar costs of goods, services, and wages in 1977.
Personnel Turnover		
Units of Service		
Satisfaction with Services		
Income		
Employment		
Income Maintenance		

Variable	Constitutive Definition	Operational Definition
Health Care Delivery		
Pollution		
Energy Consumption		

2. Listed below are several contemporary policy problems. Beside six (6) of these problems provide an indicator or an index with which to monitor policy outcomes, impacts, inputs, and processes. Note that a sample answer has been provided in the first row.

Public Policy Problem	Outcome	Impact	Input	Process
Increasing costs of home heating	Average Costs for Fuel Oil	Temperature Levels in Homes	Total Investments in Oil Refineries	Volume of Interstate Oil Flows
Declining Quality of Transportation Services				
Inadequate Police Protection				
Rising Crime Rates				
Social Inequality				

Public Policy Problem	Outcome	Impact	Input	Process
Inflation				
Declining School Achievement				
Increasing Drug Addiction				
Rising Welfare Expenditures				
Urban Fiscal Crisis				

3. The following assignments require that you display and interpret data in the form of tables and graphs.

   (a) Read the following description of college enrollment patterns in 1966 and display data in tabular form. The table has been constructed below the description; you are to indicate the source of the data and place the data in those columns and rows which have been left blank:

"According to the U.S. Bureau of the Census (Current Population Reports, Series P-20, No. 183, 1969) there was a total of 5,999,000 students between 14 and 34 years of age enrolled in college in 1966. Of this total 1,046,000 attended 2-year colleges, and 4,953,000 attended 4-year colleges. Males comprised 3,710,000 of the total, females 2,289,000. Of all males enrolled, 612,000 and 3,099,000 attended 2-year and 4-year colleges, respectively. Comparable figures for woman are 435,000 (2-year college) and 1,854,000 (4-year college). When total enrollment is broken down by race, we find that whites and blacks account for 5,625,000 and 374,000 students, respectively. Among whites, 965,000 attended 2-year colleges, as compared with 81,000 blacks. Again among whites, 4,660,000 attended 4-year colleges, as compared with 293,000 blacks."

RACIAL AND SEXUAL COMPOSITION OF STUDENTS BETWEEN 14 AND 34 YEARS OF AGE ENROLLED IN COLLEGES IN 1966

Students	Total Enrollment	Colleges	
		2-Year	4-Year
Total	5,999,000		4,953,000
--Blacks	374,000		
--Whites		965,000	
--Males	3,710,000		3,099,000
--Females		1,854,000	

SOURCE:

(b) In a sample of 3,000 blacks and whites the following data on income and race were reported. Among whites:18.4% earned less than $4,000; 24.4% earned from $4,00 to $7,999; 28.4% earned from $8,000 to $11,999; and 28.9% earned from $12,000 to $16,000. Among blacks: 36.1% earned less than $4,000; 25.8% earned from $4,000 to $7,999; 23.4% earned from $8,000 to $11,999; and 14.7% earned from $12,000 to $16,000. Display these data in the blank columns in the table below.

Income Level	Race		
	White	Black	
Less than $4,000	18.4%		
$4,000 to $7,999			
$8,000 to $11,999		23.4%	
$12,000 to $16,000			
	100.0% (2,600)	100.0% (400)	(3,000)

(c) What does the above table suggest about the relationship between race and income?

(d) The same sample of 3,000 blacks and whites was broken down into those who had completed high school and college, of which there were 1,500 persons. Among whites: 9.7% earned less than $4,000; 20.5% earned from $4,000 to $7,999; 31.5% earned from $8,000 to $11,999; and 38.4% earned from $12,000 to $16,000. Among blacks: 20.3% earned less than $4,000; 30.1% earned from $4,000 to $7,999; 25.4% earned from $8,000 to $11,999; and 24.1% earned from $12,000 to $16,000. Display these data in the blank columns in the table below.

INCOME LEVELS FOR 1,500 BLACKS AND
WHITES WITH HIGH SCHOOL AND
COLLEGE EDUCATION

Income Level	Race		
	White	Black	
Less than $4,000			
$4,000 to $7,999			
$8,000 to $11,999			
$12,000 to $16,000			
	100.0%	100.0%	
	(1,350)	(150)	(1,500)

(e) What does the above table suggest about the effects of education on the relationship between race and income?

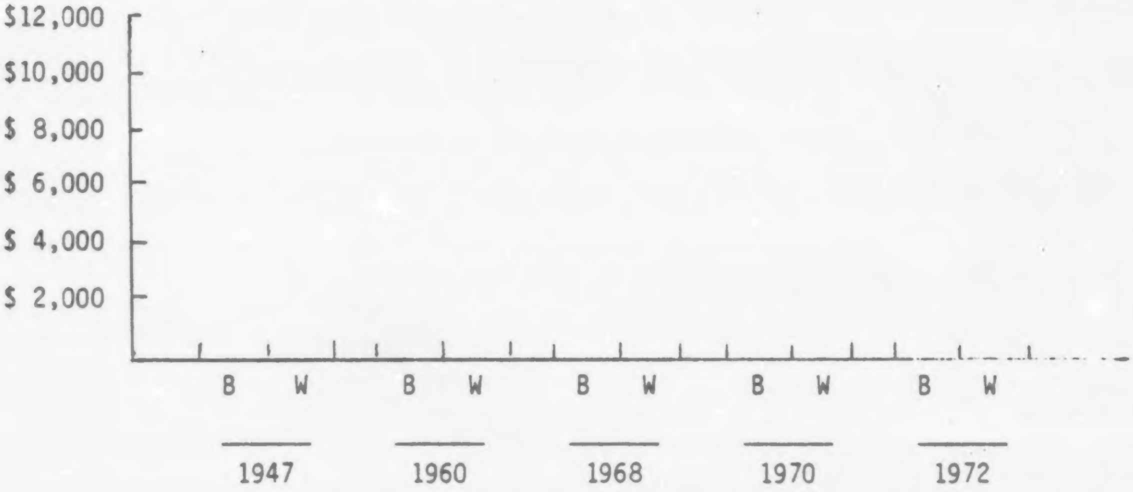
(f) On the basis of data presented below in the table, construct a bar graph which displays black and white median family incomes from 1947-1972.

MEDIAN INCOME OF BLACK AND
WHITE FAMILIES, 1947-1972

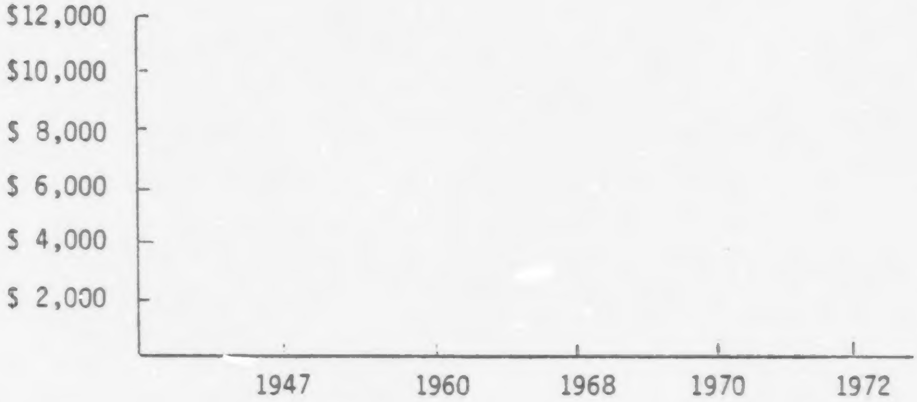
Race		Year			
	1947	1960	1968	1970	1972
White	$4,916	$6,857	$8,937	$10,236	$11,549
Black	$2,514	$3,794	$5,590	$ 6,516	$ 6,864

SOURCE: Bureau of the Census, "The Social and Economic Status of Negroes in the United States," Current Population Reports, No. 28 (1970) and No. 46 (1973).

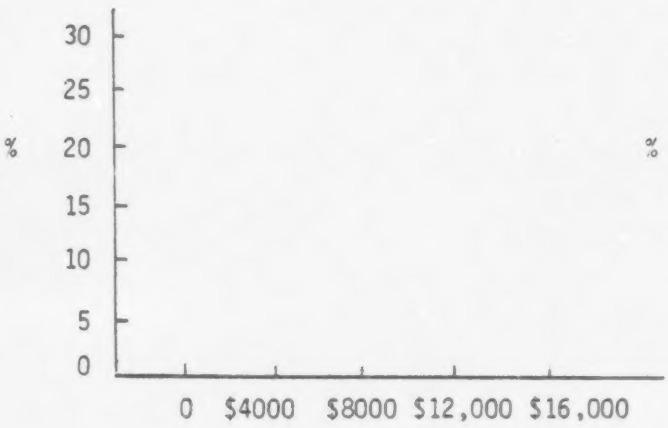
NOTE: Disregard the fact that the intervals between years are unequal.

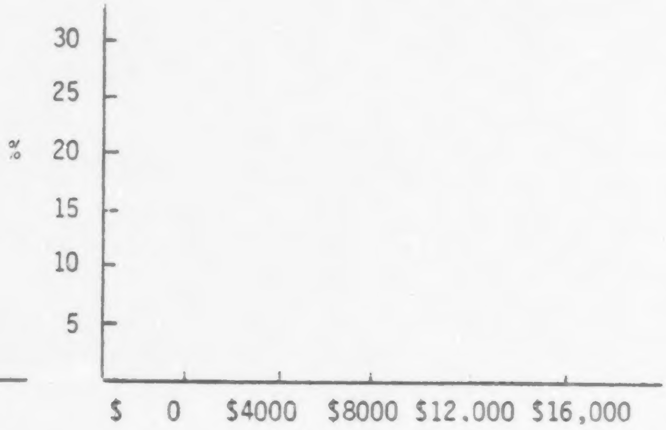


(g) Construct a broken-line graph on the basis of the same data on median family incomes of blacks and whites from 1947-1972. Draw two lines, one for blacks and one for whites, and label them.

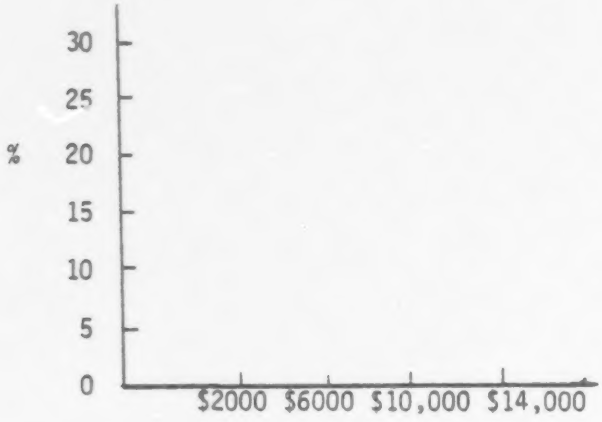


(h) Return to question 3(b) above. Use the data in your table to construct two histograms which display the distribution of income among whites and blacks. Go back to Graph 3.4 in the unit narrative and study it before you complete your answer.





(i) On the basis of the two histograms, draw a frequency polygon which displays the distribution of income among blacks and whites. Use separate lines to represent blacks and whites and label them appropriately. Refer to the unit narrative (Graph 3.4 and text) to complete your answer.



(j) The table below reports the number of criminal offenses known to the police per 100,000 population. Known offenses are broken down into two categories--total crimes against person and total crimes against property--over the period 1960-72. Construct two curve-line graphs which display trends in crime rates over the period. Label the two graphs appropriately.

CRIME RATES IN THE UNITED STATES:
OFFENSES KNOWN TO POLICY PER
100,000 POPULATION, 1960-1972

Category	Year			
	1960	1965	1970	1972
Against Person	148	185	360	398
Against Property	916	1,250	2,381	2,432

SOURCE: Federal Bureau of Investigation, Uniform Crime Reports, 1966-1971.

NOTE: Disregard the fact that the intervals between years are unequal.

(k) What do these graphs suggest about crime as a policy problem?

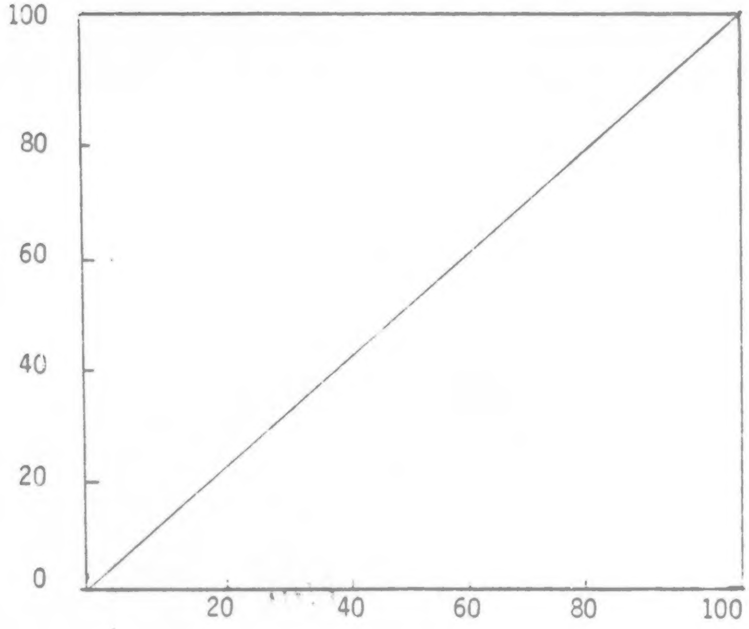
(l) The percentage increase in crimes against property and crimes against person between 1960 and 1972 is 168% (person) and 166% (property). How do these computations compare with data displayed in graphic form above? Which is a better description of the "problem?"

(m) In the table below are data on the percentage distribution of family income by quintiles in 1947 and 1972. Return to Graph 3.6 and study it. Use this data to construct two Lorenz Curves which depict changes in the distribution of income between 1947 and 1972. Label the two curves and the two axes.

PERCENTAGE DISTRIBUTION OF FAMILY
PERSONAL INCOME IN THE UNITED STATES
BY QUINTILES, 1947 AND 1972

Quintiles	1947	1972
Lowest	5.0	5.5
Second	11.0	12.0
Third	16.0	17.4
Fourth	22.0	23.5
Highest	46.0	41.6
Total	100.0	100.0

SOURCE: U.S. Bureau of the Census, *Current Population Reports*, Series P-60, No. 80.



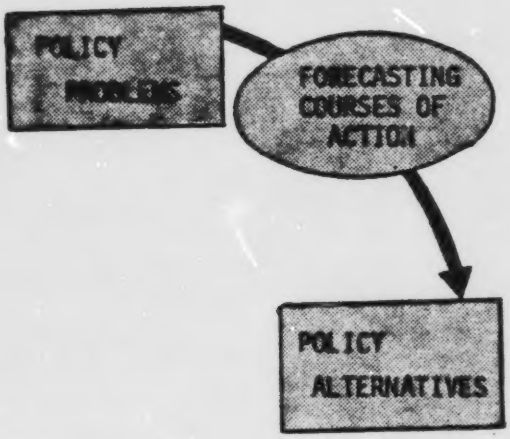
(n) What does the Lorenz Curve suggest about poverty as a policy problem? If poverty and other problems are "artificial" and "subjective," how valid is the information displayed by the Lorenz Curve?

ANSWER KEY FOR SELF-TESTING EXERCISE

1. (c) 2. (b) 3. (a) 4. (c) 5. (b) 6. (c) 7. (b) 8. (b) 9. (f) 10. (d) 11. (a) 12. (a) 13. Mean = 11.1; Median = 12; Mode = 12 and 13. 14. (b) 15. (a) 16. internal; external. 17. (b) 18. (d).

UNIT 4

POLICY ALTERNATIVES


POLICY PROBLEMS
FORECASTING COURSES OF ACTION
POLICY ALTERNATIVES

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INTRODUCTION

Policy alternatives are potential courses of public action available to realize human values or satisfy human needs. Stated in another way, policy alternatives are those courses of action which may be chosen to resolve policy problems. Information about policy alternatives is one of the most important components of policy analysis, since it is this kind of information which establishes expectations as to whether a problem is "solvable" or "unsolvable." One dilemma facing the policy analyst is to know what problem to resolve; but another is to know which course of action is likely to resolve that problem. In order to consider courses of action the policy analyst must have information about different policy alternatives and their consequences.

Information about policy outcomes on issue areas of welfare, pollution, energy, and crime is obtained by monitoring the consequences of policy actions. In turn, information about policy outcomes is necessary for identifying policy problems. It should be clear that the reliability, validity, and relevance of information about policy outcomes has a great deal to do with the ways that policy problems are identified. For example, popular myths about the "causes" of increasing welfare rolls are often based on unreliable, invalid, and irrelevant information. This information nevertheless results in expectations that certain kinds of alternatives (making welfare legislation more strict) will resolve the "problem," while others (creating more employment) will not. In other words, policy problems include some alternatives and exclude others. Problems themselves may be misidentified because of unreliable, invalid, or irrelevant information about policy outcomes.

Information about policy problems is transformed into information about policy alternatives through the use of forecasting procedures. Policy problems--whether their definition is appropriate or inappropriate (Error III)--are the basis for forecasting alternative courses of action to resolve the problem. The fact that alternatives are "problem-dependent"--i.e., the selection of alternatives is regulated by the way that the problem was initially identified--raises important questions for public policy analysis. For example, if policy problems are subjective, artificial, dynamic, infinite, and interdependent, how will we know if we have selected

LEARNING OBJECTIVES

After completing this module you should be able to:

1. Identify the essential characteristics of forecasting as a policy-analytic procedure.
2. Recognize relationships among policy outcomes, policy problems, and forecasting.
3. Compare and contrast different approaches to forecasting used by policy analysts.
4. Apply selected forecasting procedures to policy problems.
5. Recognize strengths and limitations of different forecasting procedures.

KEY TERMS AND CONCEPTS

- Forecasting
- Extrapolation
- Trend
- Time Series
- Secular Trend
- Cyclical Fluctuation
- Seasonal Variation
- Irregular Movement
- Growth (S-shaped) Curve
- Peak
- Trough
- Trend Line
- Intuitive Forecasting
- Intuitive Planning
- Theoretical Forecasting
- Theoretical Planning
- Nomological Forecasting
- Clinical Forecasting
- Analogy Forecasting
- Modelling Forecasting
- Extrapolative Forecasting
- Survey Forecasting
- Normative Forecasting
- Multimethod Forecasting

OVERVIEW

Objectives	Tasks	Resources	Evaluation
1. Identify the essential characteristics of forecasting as a policy-analytic procedure.	Study Questions 1,2,3 Test Questions 1,2	Unit Narrative	Self
2. Recognize relationships between policy problems, policy outcomes, and forecasting.	Study Questions 4,5 Test Questions 3,4 Unit Assignment 1	Unit Narrative	Self and Instructor
3. Compare and contrast different approaches to forecasting used by policy analysts.	Study Questions 6,7,8 Test Questions 5,6 Unit Assignment 2	Unit Narrative	Self and Instructor
4. Apply forecasting procedures to policy problems.	Study Question 9 Test Questions 7,8 Unit Assignments 3,4	Unit Narrative	Self and Instructor
5. Recognize strengths and limitations of different forecasting procedures.	Study Questions 10,11,12 Test Questions 9,10	Unit Narrative	Self

the right alternatives to resolve the problem? Which courses of action shall we forecast into the future? If we have forecast the wrong courses of action, how meaningful is any information about the probable consequences of different alternatives?

The above questions highlight the importance of policy problems in shaping the use of forecasting procedures. Forecasting is one of the most complex procedures used by policy analysts, primarily because we lack adequate information about policy outcomes and policy problems. Nevertheless, forecasting is essential for rational choice of any kind, since it permits us to assess the consequences of different courses of action. In this module we shall examine: (1) the nature of forecasting as a policy-analytic procedure; (2) similarities and differences among various approaches to forecasting used by policy analysts; and (3) strengths and weaknesses of different forecasting procedures.

THE NATURE OF FORECASTING

In the past decade there has been a remarkable increase in the use of various new forecasting procedures by policy analysts. While generations of economists have used forecasting procedures to project trends in economic factors such as employment, investment, and income, it is only recently that methods of social forecasting have come into wide use. At the present time various forecasting procedures are used to project the consequences of a wide array of social conditions. Forecasting is used to project patterns of economic growth, population decline, ecological degradation, political apathy, general life satisfaction, quality of life, fiscal decline, and agency workloads. The use of forecasting procedures cuts across all societal activities, levels of government, and policy issue areas.

Forecasting involves the making of factual statements about the future on the basis of knowledge of past events or conditions. In policy analysis, forecasting procedures are used to predict the consequences of alternative courses of public action and inaction. Forecasting involves the systematic analysis of expectations about future events, such that explicit comparisons may be made among different policy alternatives. Forecasting usually excludes attempts to select alternatives by comparing them with stated preferences or values--i.e., forecasting involves factual rather than value premises. Recommendation--as distinguished from forecasting--involves both factual and value premises about the future. Therefore, forecasting is a prerequisite for recommendation and an important tool for more effective policy formation.

Forecasting may be applied to various kinds of problems. First, forecasting may be used to predict changes in policy environments which are likely to occur if governments take no further action, i.e., if they maintain the government status quo. For example, forecasting procedures are employed to predict the probable growth of pollution, given existing levels of government regulation of industry and consumer behavior. Similarly, forecasting may be used to predict an agency's caseload in the next year, assuming that agency procedures, rules, and expenditures remain the same. Second, forecasting may be used to predict changes in policy environments which are likely to occur if new policy alternatives are chosen--i.e., if governments take new actions. For example, forecasting is employed to compare the probable consequences of different types of public assistance programs (traditional welfare programs vs. income maintenance programs) in reducing welfare roles or changing employment patterns. Third, forecasting may be used to predict whether certain kinds of policy alternatives will actually be adopted or implemented by public bodies or organizations. For example, forecasting may be used to estimate the chances that Congress will approve certain kinds of legislation (such as national health insurance). Fourth, forecasting may be employed to predict whether particular policy actors--e.g., Congressional committees, agency heads, political parties, organized interest groups--will exert sufficient influence to facilitate or block the acceptance of given policies. Finally, forecasting may be used to predict two or more of the above types of conditions or events at the same time. In other words, forecasting may be applied to different objects of analysis.

1. Changes in policy environments if no further public action is taken;
2. Changes in policy enviornments if new policies are adopted;
3. Changes in the content of public policies; and
4. Changes in the influence of policy actors in formulating and implementing public policies.

Three of the most commonly employed bases of forecasting are intuition, theory, and extrapolation. Forecasting may be based on intuition, including subjective judgments, speculation, or educated guesses. A large number of public and private organizations use intuitive forecasting to project future workloads, expenditures, and demand for goods and services. Forecasts are also made on the basis of theory--i.e., general knowledge of cause and effect relationships. A good deal of the forecasting which underlies special education projects supported by the government is based on various theories of learning developed by educational psychologists. Lastly, the extrapolation of past events is one of the most prevalent bases of forecasting. In this case, forecasts about future events are based on assumptions that trends observed in the past will continue into the future. For example, historical patterns of growth in government spending may be extended into the future by making assumptions that the future will conform to the past. These three bases of forecasting--intuition, theory, and extrapolation--are illustrated below in Table 4.1. It should be noted that forecasts made on different bases can and do conflict with one another.

TABLE 4.1

Forecasts and Their Bases in Two Issue-Areas

Issue-Area	Basis of Forecast		
	Intuition	Theory	Extrapolation
Crime	Crimes against person will rise at an ever increasing rate.	Crime is a funtion of joblessness; crimes will decrease as jobs increase.	Based on past trends, crimes against person will increase at a slower rate than crimes against property.
Welfare	The rich will get richer and the poor will get poorer	Social inequality is a function of education; increased educational opportunity will result in greater social equity.	Trends in the 1947-1972 period show that incomes have become more equitable. This trend will continue in the future.

The main difficulty with intuition as a basis for forecasting is that different persons often reach entirely different predictions of future events. While we will discuss several ways to overcome this problem below, the main weakness of various forms of intuitive forecasting is that predictions are unsystematic, implicit, and cannot easily be repeated by others. Moreover, intuitive forecasts may actually be social myths in disguise--i.e., half-truths or distortions which may help to make sense out of complex policy problems, but nevertheless result in self-fulfilling prophesies.

Scientific theories might appear to provide a firm basis for forecasting. Such theories, however, contain their own myths in the form of different scientific paradigms and ideologies. Moreover, there are far fewer policy-relevant scientific theories than is commonly believed. When such theories are available, they are typically much more useful in explaining negative characteristics of society as a whole--e.g., theories of inequality, urban squalor, and collective violence--than in suggesting specific remedies (Williams, 1971).

Perhaps for the above reasons extrapolation is one of the most commonly used methods for systematically forecasting future conditions. The chief assumption of extrapolation is that patterns of events which occured in the past will continue unchanged in the future--e.g., rates of growth or decline will remain constant over time. A trend is a projected pattern of events based on extrapolation. As compared with intuitive forecasts and many social theories, extrapolative forecasts have two main advantages: they are based on systematically acquired information and they make their assumptions explicit. The main advantage of extrapolation is that assumptions of historical continuity may not be justified, since the past may not repeat itself in the same form. Extrapolative forecasts are essentially assertive in nature--they assert that future events will occur in a certain way, but do not explain why. Lastly, extrapolations often contain a built-in conservative bias, since they tend to use the past as a standard of what is possible in the future. Fortunately, we are not compelled to accept any one of the three main bases of forecasting as the sole guide to analysis; this would result only in dogmatism and error. We can use multiple methods--intuition, theory, and extrapolation--as bases for forecasting.

One of the most important methods of forecasting is time series analysis. Time series analysis projects statistical information about past events in order to make estimates of future ones. In time series analysis statistical data on a subject of interest is first arranged in chronological order. Past patterns are then summarized with numbers (e.g., averages) and projected into the future. For example, in investigating the energy crisis we may wish to project changes in sources of electricity to the year 2000. Table 4-2 below forecasts decreasing reliance on oil, gas, and coal between 1970 and 2000.

TABLE 4.2

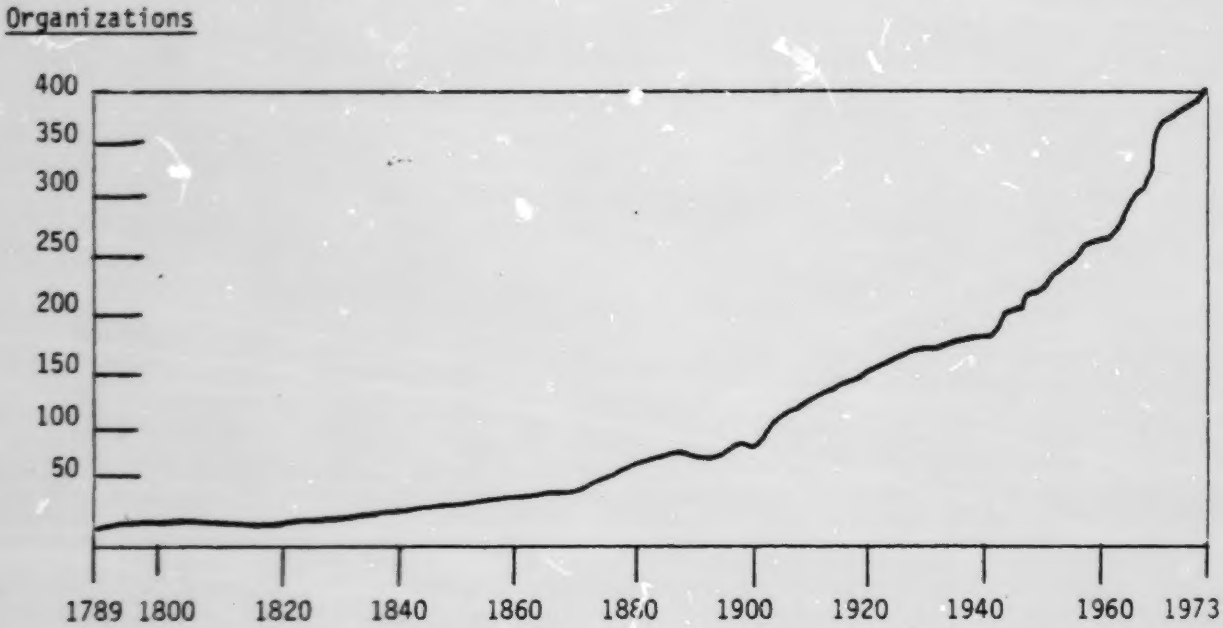
Changes in Sources of Electricity, 1970-2000

Source	Year			
	1970	1975	1985	2000
Oil	5%	8%	10%	9%
Gas	29	21	12	10
Coal	56	48	40	33
Other	10	23	38	52
Total	100%	100%	100%	100%

SOURCE: Joint Committee on Atomic Energy, "Certain Background Information for Consideration When Evaluating the National Energy Dilemma" (Washington: U.S. Government Printing Office, 1973); and B. Hughes, U.S. Energy, Environment, and Economic Problems: A Public Policy Simulation (Washington: American Political Science Association, 1975), 26.

Classical time series analysis, which has most often been employed by economists, is concerned primarily with the projection of economic trends. It is "a descriptive method which attempts to break down an economic time series into distinct components which represent the operation of groups of explanatory factors..." (Hamburg, 1970:542). These factors might include weather conditions, customs, consumer tastes, and technology. These factors might be arranged in several different kinds of patterns: (1) Secular *trends* are relatively smooth upward or downward movements over a period of 15-20 years or more. (2) *Cyclical fluctuations* are recurrent upward and downward movements around a secular trend line over periods of 10-15 years or less. The duration of such fluctuations is measured by calculating the distances between *troughs* (the lowest point in a cyclical fluctuation) and *peaks* (the highest point in a cyclical fluctuation). (3) *Seasonal variations* are patterns of movement within a time series which occur in defined periods of time (e.g., years, quarters, months). Seasonal variations occur within specified chronological intervals, whereas cyclical fluctuations do not. Seasonal variations may be due to weather, customs, or holidays. (4) *Irregular movements* are represented by fluctuations that follow no consistent pattern, either chronological or recurrent. Irregular movements are "residual variations"--i.e., sporadic, unpredictable, or unknown factors which are "left over" after secular trends, cyclical fluctuations, and seasonal variations have been taken into account. Among common sources of irregular movements are wars, natural disasters, strikes, and completely unknown factors.

We shall concentrate now on methods for estimating secular trends, since this component of time series analysis clearly illustrates the methodological strengths and limitations of extrapolation. Secular trends are likely to be found in relatively stable environments monitored over long periods of time. Secular trends are evident in the growth of governmental expenditures, national income, costs of municipal services, and the number of governmental organizations. For example, an important recent study (Kaufman, 1976) uses time series analysis to demonstrate an exponential growth of governmental organizations from roughly 1865 to 1973. Over most of this period the number of federal agencies has grown at an ever increasing rate, suggesting that the expansion of government may resemble growth curves used to represent changes in biological organisms. *Growth (S-shaped) curves* are characterized by slow rates of change at the beginning of a time period; subsequently one finds ever increasing rates of growth up to a certain point, after which the rate of growth begins to decrease and level off. Cumulative totals of government organizations that survived until 1973 are illustrated in Graph 4-1, which depicts a secular trend in the growth of federal agencies throughout most of the nineteenth and twentieth centuries. Whether the growth of government organizations will continue at the same rate, or level off in future, is an open question.



GRAPH 4-1

Cumulative Totals of Organizations that Survived to 1973, by Twenty-Year Intervals, 1789-1973.

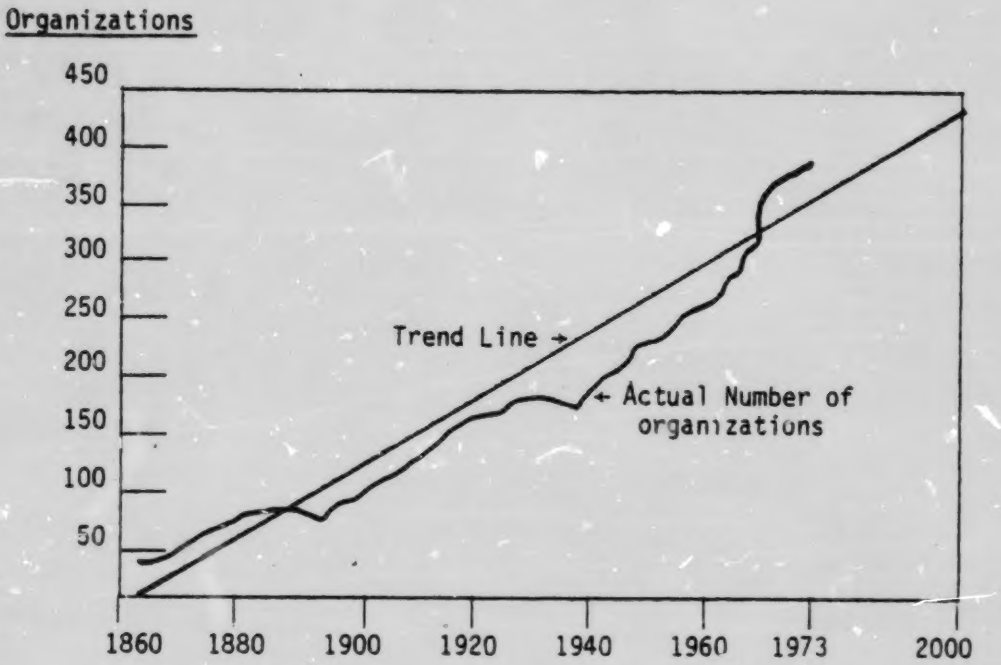
SOURCE: H. Kaufman, Are Government Organizations Immortal? Washington, D.C.: The Brookings Institution, 1976, Adopted from Figure 4, 62.

The main problem encountered in estimating secular trends is how best to describe them. On the one hand, it is not difficult to visually examine a secular trend as depicted in Graph 4-1 above; we can easily describe the overall movement in the number of organizations over time. On the other hand, it would be extremely difficult to provide an unbiased guess as to what the secular trend would look like in the year 2000. For this reason methods have been devised which allow us to calculate a trend line. Such a line summarizes past and future changes in the magnitude of conditions over time.

In determining the trend line of a time series such as that depicted in Graph 4-1 we would follow several steps:

1. Establish the time period of interest (1860-1970) and its intervals (units of 20 years).
2. Make necessary adjustments for factors which should be taken into account in order to interpret the trend (e.g., subtract the number of organizations dissolved from those newly established in each time period).
3. Plot the values (e.g., cumulative totals of organizations) for each successive time period.
4. Fit a trend line to the points on the graph, either by hand and visual inspection (the so-called "black thread" method), by statistical calculations (averages and rates of change), or by solving mathematical equations.
5. Extend the trend line to any point of time in the future (e.g., 2000), obtaining the projected number of organizations from values on the vertical axis; or choose the time point and calculate the projected number of organizations from data on established rates of change.

Where Graph 4-1 is fitted with a trend line extending over the period 1860-2000 we find that the projected number of organizations in the year 2000 is approximately 431. This straight line trend is illustrated in Graph 4-2 below.



GRAPH 4-2

Straight Line Trend Fitted to Cumulative Totals of Organizations, 1860-2000

SOURCE: Adapted from Kaufman (1976), Figure 4, 62.

Straight line trends such as that illustrated in Graph 4-2 are not appropriate for all forecasting problems. (1) A straight line trend is appropriate for relatively smooth secular movements, but not for the kinds of non-linear patterns encountered in the analysis of cyclical fluctuations and seasonal variations. (2) A straight line trend is essentially non-predictive. This is because there is no theoretical basis for explaining why any secular movement did occur in the past or if it may continue into the future. (3) The extrapolation of straight line trends has a conservative bias, since it suggests that what has occurred will occur in the future. This kind of bias can severely limit the considerations of possible alternative futures. (4) Straight line trends are appropriate for long-term movements (15-20 years), but not shorter ones. (5) Similarly, the estimation of such trends requires that the environments in which they occur are relatively stable ones; the more dynamic or erratic the environment, the less applicable are forecasting methods based on the extrapolation of straight line trends. Lastly, (6) the kinds of data usually available for time series analysis of secular trends are sometimes only indirectly relevant to public policy. Economic and demographic data, for example, is seldom appropriate for forecasting changes which are, in fact, due to particular policies, largely because such policies are only remotely related to social and demographic factors, such as urbanization and health. Even less often available data helps to forecast changes in the content of particular policies or changes in the involvement and influence of policy actors.

STUDY QUESTIONS

Answer each of the questions that follow:

1. How does the reliability and validity of information about policy outcomes affect the success of forecasting?

2. List several ways that forecasting can contribute to greater control and coordination of policies.

3. Compare and contrast intuition, theory, and extrapolation as bases of forecasting.

4. Which bases of forecasting are most appropriate for policy problems that are subjectivistic, dynamic, and infinite?

5. Which of the three bases of forecasting is probably least affected by popular myths about policy problems?

6. Which of the three modes of inquiry (dialectical, deductive, inductive) is most closely associated with intuitive, theoretical, and multimethod forecasting?

APPROACHES TO FORECASTING

A range of problems associated with time series analysis and the extrapolation of secular trends have given rise to a variety of different approaches to forecasting. Some of these approaches are quantitative; others are qualitative and require no particular application of statistics. Some approaches are systematic, in that they state assumptions explicitly and follow formal methodological procedures; others are essentially unsystematic, since they leave assumptions vague and follow no recognizable method. Finally, some approaches to forecasting seek to predict changes in variables which are part of existing policy processes--e.g., the probable influence of policy actors in resolving an issue--while others attempt to forecast changes which are part of the policy environment.

Perhaps the best way to compare and contrast different approaches to forecasting is to apply the two major dimensions of forecasting discussed in the preceeding section--i.e., the basis and the object of forecasting. As you will recall, there are three primary bases of forecasting: intuition, theory, and extrapolation. The objects of forecasting discussed above--i.e., changes in policy environments without public action, changes in environments with public action, changes in the content of policies, and changes in the influence of policy actors--may be grouped into three major categories: policy environment, public policies, and policy actors. These three categories of types of objects, you will recall, represent the three principal elements in a policy system (Module 1). If we cross-classify these two dimensions--i.e., the methodological basis and the object of forecasting--we possess a framework which is useful in distinguishing various approaches to forecasting. Table 4-2 shows the primary methodological basis and object of different approaches to forecasting now in use by policy analysts.*

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*Table 4-2 shows the primary methodological basis and object of approaches now in use. Because a particular approach is based primarily on intuition and directed primarily to policy environments does not mean that the same approach might not have a different basis and object in given instances.

TABLE 4-3

Approaches to Forecasting According to Their Primary Methodological Basis and Object

Primary Methodological Basis	Primary Object of Forecast		
	Policy Environment	Public Policies	Policy Actors
Intuition	Intuitive Forecasting	Intuitive Planning	
Theory	Nomological Forecasting Theoretical Forecasting Modelling Forecasting	Theoretical Planning Normative Forecasting	Analogy Forecasting
Extrapolation	Extrapolative Forecasting Survey Forecasting		Clinical Forecasting

Intuitive forecasting involves the estimation of future conditions in a policy environment by persons who are assumed to have some special competence in a given issue area. Intuitive forecasts are made by individuals as well as groups. They may be systematic and formal, or unsystematic and non-formal. Assessments of future conditions by individual scholars and social critics--e.g., assessments of the state of a nation in the year 2000--are often unsystematic and non-formal, since such forecasts are based largely on speculation and educated guesses. The difficulty with such forecasts is not so much that different individuals can and do reach entirely different assessments of the future; it is rather that we do not know how they reached such assessments or what information was used to reach conclusions. In effect, unsystematic and non-formal intuitive forecasts place primary reliance on the authority of individuals and groups--e.g., experts religious spokesmen, gurus--rather than the experience and methods which underlie a particular forecast.

Such difficulties have led to a variety of methods for systematically comparing and summarizing the judgments of experts. These methods include special conferencing techniques, which seek to bring together groups of experts in the same location (conference task groups) or through communications media (computer and telephonic conferencing). Perhaps the most well-known and prevalent method for systematically generating expert opinion is the Delphi method, which uses groups of expert judges whose collective assessments of future conditions are generated in a series of steps: (1) each expert judge is requested to offer an assessment of future conditions (e.g., the extent of ecological degradation in the year 2000, assuming that no further governmental regulation occurs); (2) each expert's forecast and its basis is systematically recorded; (3) the similarities and differences between forecasts, as well as their bases, are reported back to each expert judge; (4) each judge is asked to offer a revised forecast on the basis of information about similarities and differences in the group as a whole; and (5) revised forecasts are again systematically recorded. The Delphi technique may involve many iterations--i.e, successive revisions on the basis of new information--and the typical objective is to create consensus among expert judges. The advantage of the Delphi technique is that it makes the basis of forecasts explicit and employs systematic methods. Its main disadvantage is that it places primary reliance on authority (i.e., "experts") and tends to force consensus prematurely in situations where conflict may be beneficial. Nevertheless, the Delphi technique may be based on inductive (consensual) as well as dialectical (conflictual) strategies of inquiry.

Whereas Delphi and conferencing techniques typically use intuition as a basis for forecasting changes in policy environments, intuitive planning uses intuition as a basis for estimating probable changes in the content of policies, the behavior of policy actors, and the consequences of both the changes in policy environments. Intuitive planning--which is best illustrated by efforts of public and private managers to reach the subjective estimates of probable changes in target groups, budgets, and workloads--tends to be non-explicit and non-reproducible. Nevertheless, there are methods available to systematize the process of intuitive planning, including Bayesian decision analysis, which involves the application of statistical probability theory to hunches, personal speculation, and educated guesses. The essential characteristic of Bayesian analysis is that it relies on "prior probabilities"--i.e., assessments of probable future conditions which are based on intuitive judgments, rather than objectively verifiable information. As with methods of intuitive forecasting discussed above, Bayesian decision analysis is most useful in situations where information is either absent or highly unreliable. The advantages of Bayesian analysis is that it is explicit and reproducible; its main disadvantage is that it places primary reliance on methods, often to the exclusion of experience acquired through systematic observation.

Nomological forecasting (the Greek work nomos means "law") attempts to predict changes in policy environments on the basis of knowledge of social "laws"--i.e., universally valid and invariant relationships such as those contained in the law of gravity. Invariant patterns of action in society are used as bases for predicting the future. Thus, the example, "laws" of bureauratic growth sometimes hold that a process of increasing authoritarianism is one of the major characteristics of modern societies. If such "laws" are in fact valid, forecasts should reach conclusions that bureaucratic elites--rather than citizens in a democratic society--will increasingly dominate policy making. In effect, policy environments will be composed increasingly of apathetic or powerless citizens who have less and less control over decisions which affect their lives. The main advantage of nomological forecasting is that predictions are explicity derived from theories about social processes. Because the basis of forecasts is explicit, predictions can be challenged with new evidence. The weakness of such "laws," however, is that they are not easy to prove; in fact, many have been successfully challenged through various research efforts which show that social processes such as "bureaucratization," "technological progress," and "social disorganization" are much more complex and unpredictable than advocates of theories admit. In short, attempts to forecast future conditions on the basis of "laws" of politics, economics, or society have not been particularly successful.

Theoretical forecasting is also derived from explicit assumptions about social processes. One of the essential differences between nomological and theoretical forecasting is that the latter is tentative and open to new evidence. Attempts to apply theoretical forecasting to changes in policy environments--e.g., attempts to predict the increasing role of knowledge and expertise in post-industrial policy environments--typically offer predictions in the form of hypotheses (i.e., conjectures) which can be accepted or rejected on the basis of new evidence. The advantages of theoretical forecasting include explicitness, a primary reliance on experience, and a capacity to learn from failures as well as successes. Theoretical forecasting has no disadvantages that are not also shared by other approaches to forecasting, including an inability to deal with uncertainty, limited information, and erratic changes in policy environments. At the same time most social sciences disciplines, with the possible exception of economics, have not yet provided many social theories which actually contribute to effective social prediction.

Theoretical planning is closely related to theoretical forecasting. The main difference is that theoretical planning is explicitly concerned with changes in the content of public policies and the behavior of policy actors. The main purpose of theoretical planning is to produce a plan of action. Forecasts assume the form of predictions about what will occur if particular plans or policy alternatives are adopted--e.g., low-income persons will seek to increase their incomes if provided with a guaranteed annual income, since all human beings wish to maxmize their own welfare. Advantages and disadvantages of theoretical planning are identical to those of theoretical forecasting, with one significant exception: theoretical planning, while action-oriented, requires that public policies are actually adopted before predictions may be tested. Since it is easier to propose a policy than to gain acceptance for its adoption, theoretical planning is heavily dependent upon the assumption that policies will in fact be carried out.

Modelling forecasting is also based on theory, except that predictions are derived from a small set of variables that are part of a larger theory. A model is a formal representation of a theory which typically uses quantitative terms (e.g., numerical values in mathematical equations) to express relationships among variables. For example, economic forecasting models use quantitative terms to express relationships between factors of production (capital, labor, and technology) and changes in national income. Models are, also, used to predict changes in world population, food production, industrial growth, and pollution levels. Many contemporary discussions surrounding the policy issue of "limited growth" are based on results of modelling forecasting. The main advantages of modelling forecasting are its explicitness and capacity to describe complex and dynamic social processes. Its disadvantages include a high level of abstraction, mathematical terms which are unintelligible to many policymakers, and a lack of reliable and valid information to test predictions derived from models. Nevertheless, modelling forecasting has great potential in capturing the complexity, dynamics, and irregularities of policy environments.

Normative forecasting is similar to modelling forecasting in its emphasis on the construction and use of formal mathematical representations. In normative forecasting, however, the variables of interest are directly connected with public policies and policy actors. The objective of normative forecasting is to optimize resource allocations, given certain normative (i.e., value) criteria. For example, normative forecasting may include efforts to predict optimal combinations of time, manpower, and financial expenditures as part of an overall effort to analyze and recommend appropriate policies. Normative forecasting may involve efforts to forecast optimal allocations of teaching time, research and development allocations, and public investments in flood control and irrigation projects. Normative forecasting uses a variety of techniques (e.g., decision networks, linear programming) to predict the most efficient choices possible under different conditions. The advantages of normative forecasting include explicitness, standardized methods, and an action-orientation. Disadvantages include the high level of abstraction of models, the lack of reliable and valid information, and the requirement that policies be adopted before predictions may be tested. In short, the key assumption of any normative forecast is that recommendations will actually be implemented.

Analogy forcasting makes estimates of probable future states on the basis of theoretical assumptions about similarities between policy systems and physical and human organisms. Analogy forecasting is perhaps the oldest of all approaches, insofar as policy systems such as nations are likened to individual human actors--e.g., the nation is viewed essentially as an individual "actor" who makes rational choices. Analogy forecasting is also based on assumptions about similarities between policy systems and biological organisms. For example, biological growth (S-shaped) curves are used to predict changes in the growth of public organizations. Analogy forecasting also sometimes draws on general systems theory--i.e., that branch of science which deals with the study of physical, biological, and human phenomena as "systems" of interdependent elements. Historical analogies--e.g., the fall of the Roman Empire--are also used as a basis for forecasts. The main advantages of analogy forecasting are its explicitness and, capacity to raise interesting questions about parallels between policy processes and other kinds of activities; its major weakness is that analogies do not permit firm conclusions about the relevance of similar situations or "systems" for predicting changes in the content of policies or the behavior of policy actors. Analogy forecasting is often advocated as an "heuristic" device--i.e., one which assists in discovering bases for prediction rather than justifying them on scientific grounds.

Extrapolative forecasting, already discussed above, is not derived from any particular theoretical perspective, but rather depends on assumptions about the continuity of past and future events. While advantages and disadvantages have been reviewed in the preceeding section, it is important to emphasize that extrapolation may be applied to linear relationships (e.g., secular trends) as well as non-linear ones (e.g., cycles, fluctuations, irregularities). As policy environments become more dynamic, complex, and irregular the success of extrapolative forecasting also decreases substantially. Extrapolation has the advantages of explicitness, standardized methods, and a primary reliance on experience acquired through the systematic monitoring of policy environments. Its principal disadvantage is the fact that forecasts are based on assumptions, rather than theories which actually explain why changes occur.

Survey forecasting uses questionnaires and interviews administered to samples of a population in order to project changes in attitudes, opinions, or values of different segments of a community. Survey forecasting may use panels of individuals (i.e., the same persons) who are interviewed over successive periods of time. For example, a survey forecast may follow a group of high school students through a period of twenty years, attempting to monitor and then forecast changes in attitudes toward government. In contrast, survey forecasts may use cohorts--i.e., different individuals from the same age group are interviewed over successive periods of time. For example, three groups of high school students of the same age (12-16 years) may be interviewed at three successive points in time (1960, 1970, 1980), on the assumption that changes in attitudes among students with the same characteristics (but who are not the same person) may serve as a good predictor of the future. Survey forecasting is useful for estimating trends in value profiles, political beliefs, and assessments of public needs. Surveys have the advantage of explicitness, standardized methods, and a reliance on experience acquired through systematic monitoring. Its main disadvantage lies in the fact that attitudes, values, and opinions are often highly unstable, thus making it difficult to obtain reliable and valid information. Many surveys also suffer from the same weaknesses as the extrapolation of trends through time series analysis--i.e., surveys are typically based on assumptions of historical continuity, rather than theory.

Clinical forecasting seeks to make predictions about policy actors on the basis of information about their attitudes, motivation, and past behavior. One of the main objectives of clinical forecasting is to assess the probable future behavior of policymakers and organizations by identifying past patterns of political influence or "leverage," degrees of commitment to certain courses of action, and the scope of resources available to different policy actors. A number of efforts to develop frameworks for the study of policy-making elites--i.e., persons who regularly make and influence key decisions--have served as a basis for clinical forecasts (see Bauer and Gergen, 1968). Clinical forecasting is typically non-quantitative and lacks the degree of explicitness of other approaches. Nevertheless, it places primary reliance on experience acquired through monitoring policy-making behavior; it is more directly oriented to concrete policy processes; and it places heavy emphasis on questions of political feasibility. Clinical forecasting, while less successful than other approaches in making reliable predictions, also rests on assumptions of continuity between past and future actions. Like other approaches to forecasting it therefore runs the risk of conservative biases, even though it advocates claim that it is more "realistic" than other approaches.

7. The F.B.I.'s Uniform Crime Reports indicate that total crimes against person increased by 169 percent in the period 1960-1972. If you were to estimate from this data the growth of crime in the period 1973-2000, what would the basis of this forecast be? What is the object?

8. Provide on the basis of your own experience an example of each of the twelve types of forecasting discussed in the unit narrative.

9. Provide descriptions by means of naturalistic monistic, and intrinsic methods of the "energy crisis" as a policy problem. Then indicate what kinds of forecasts are likely to result from each myth.

FORECASTING: STRENGTHS AND LIMITATIONS

Forecasting in some form is essential for rational choice. Only by having knowledge of the probable consequences of actions is it possible to exercise choice; if the consequences of actions are completely unknown or random it is unlikely that any actions will be taken at all. Although some policymaking behavior is habitual, routine, and highly "rationalized", many major decisions are made on the basis of explicit forecasts of probable consequences. Nevertheless, it is obvious from our review of major approaches to forecasting that efforts to predict changes in policy environments,. the content of public policies, and the behavior of policy actors suffer from several limitations:

1. Irregularity. Forecasts are likely to be most successful when objects of prediction are regular, sustained, and continuous. Since many of the most important changes in policy environments, policies, and behavior are irregular, interrupted, and discontinuous, only the most complex of approaches (e.g., modelling forecasting) are likely to produce reliable estimates of future trends. Some of the most simple approaches (e.g., intuitive, extrapolative, and nomological forecasting) may not be appropriate or well-suited for highly complex social processes.

2. Time. Forecasts dealing with short-term changes in complex and unstable social processes (e.g., changes in value profiles) are likely to be more successful than those which seek to predict long-term changes. Nevertheless, many of the most complex and critical policy problems (e.g., ecological degradation and pollution) require long-term forecasts to the end of this century and beyond.

3. Inadequate Information. Forecasts which cannot be made with reliable and valid information acquired through systematic monitoring must place great reliance on intuition, including hunches, educated guesses, and speculation. Since reliable and valid information is lacking in many issues-areas--e.g., it is difficult at present to determine which educational, social and environmental policies work best and why--there is a tendency toward the heavy use of approaches that are least dependent on good information (e.g.. intuitive and nomological forecasting). The ultimate test of any forecast is experience. Intuitive and nomological approaches can easily become sources of authoritarianism, insofar as they rely on the special personal qualities of experts, religious leaders, or gurus.

4. Methodism. Forecasts which rely heavily on methods, but do not pay sufficient attention to experience (e.g., modelling and normative forecasting), tend strongly to create illusions of "scientific" validity when there is actually little or no reliable information on which to base forecasts. This often results in an exaggerated concern with methods ("methodism"), formal scientific rules ("scientism"), and quantitative techniques ("quantophrenia").

5. Conservatism. Forecasts which rely heavily on experience may have a tendency toward conservative biases, since the future is assumed to be a direct continuation of past conditions, policies, and behaviors. Approaches based on theory (e.g., theoretical and nomological forecasting) sometimes represent policy systems as if they were universally stable, regular, or invariant (e.g., the theory of "disjointed incrementalism"). Approaches based on extrapolation (e.g., extrapolative and survey forecasting) also tend often to represent policy systems in the same way, thus suggesting that new or perhaps unrecognized alternatives are impossible.

6. Lack of Controls. Forecasts which are primarily oriented toward changes in policy environments (e.g., crime rates, drug addicion, welfare rolls, income distribution) are often unrelated to actual policy alternatives, since it is difficult to relate broad social changes (e.g., increases in crimes against property) to government action or inaction (e.g., law enforcement training programs) unless one monitors and forecasts environments, policies, and the behavior of policy actors at the same time. Broad social changes such as those measured by the growth of crime may be due to factors (e.g., family structure) beyond the control of policy makers.

7. Indefinite Impact. Forecasts which are primarily oriented toward changes in the content of public policies (intuitive planning, theoretical planning, normative forecasting) and the behavior of policy actors (analogy and clinical forecasting) are often unrelated to policy impacts--i.e., they fail to show how policies actually change policy environments which are complex, unstable, and irregular. A variety of techniques associated with normative forecasting--including decision trees, linear programming, and cost-benefit analysis--sometimes produce elegant quantitative "solutions" which turn out to have solved the wrong problem, as in urban renewal programs designed for the poor which result in their migration from the area "developed" by planners.

Up to this point we have considered limitations of single approaches to forecasting. Fortunately, we are not compelled to accept either one or the other of the several approaches as the only valid way to forecast changes in policy systems, a procedure which would only result in dogmatism and failure. In this context, one of the most promising approaches is multimethod forecasting, which seeks to estimate future changes in several objects (environments, policies, policy actors) by using multiple bases (intuition, theory, extrapolation). Multimethod forecasting may be applied according to one or all of the following procedures: (1) by employing multiple modes of inquiry (logico-deductive, inductive, dialectical) to define a forecasting problem; (2) by applying multiple approaches (e.g., intuitive, normative, and clinical forecasting) to the same policy problem; and (3) by applying different approaches to different aspects of policy systems. The last approach to multimethod forecasting is most prevalent, although the reasons for selecting a particular approach are seldom made explicit. The choice of approaches seems to be guided by habit, ideological persuasion, or purely practical considerations. In Harrison's words (1976:9-10):

> [C]linical forecasting procedures are used to estimate the probable actions of key decision makers...; extrapolative and analogy forecasting methods are used to estimate the demographic characteristics of the social fabric; survey forecasting techniques are used to estimate trends in values in social classes, age groups, or other broad social categories; gravity models [i.e., modelling forecasting] are used to forecast transportation patterns or population migration patterns; and so forth. A total social forecast covering a variety of topic areas could therefore employ a variety of methods.

In summary, policy analysts must know which courses of action (policy alternatives) are likely to resolve policy problems. The policy-analytic procedure of forecasting provides information on the consequences of different policy alternatives. The approaches to forecasting discussed above may be compared and contrasted according to their primary basis and object. Each approach has characteristic strengths and limitations, depending upon the nature of the social processes which policy analysts seek to forecast. Many of the limitations inherent in particular approaches may be overcome by employing multimethod forecasting, even though the choice of forecasting methods seems now to be guided more by convenience or habit than by systematic considerations of methodological appropriateness. While there is no doubt about the significance of forecasting for policy analysis, results have so far been mixed. In any case, forecasting policy alternatives is only part of the challenge facing policy analysts; policy analysts must also recommend policy alternatives according to some scale of values, which is the subject of the next unit.

10. When is intuition most useful as a basis of forecasting?

11. What kinds of social processes are most suitable for approaches to forecasting based on extrapolation?

12. Rank different approaches to forecasting according to their reliance on authority, methods, and experience.

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SELF-TESTING EXERCISE

1. All forecasting approaches permit us to make cause and effect statements about the future.

   (a) True

   (b) False

2. A straight line trend is most useful for projecting future changes in social processes which are:

   (a) discontinuous

   (b) irregular

   (c) stable

   (d) random

3. An intuitive forecast is most appropriate under which one of the following conditions:

   (a) no data on policy outcomes is available

   (b) past trends are irregular

   (c) past trends are cyclical

   (d) past trends are secular

4. A multimethod forecast is probably most appropriate for problems which are:

   (a) well-structured

   (b) simply structured

   (c) ill-structured

5. An approach to forecasting whose primary methodological basis and object are theory and the policy environment, respectively, is:

   (a) nomological forecasting

   (b) analogy forecasting

   (c) clinical forecasting

   (d) theoretical forecasting

6. A conservative bias is most likely to be found among policy analysts who employ:

   (a) intuitive forecasting

   (b) analogy forecasting

   (c) nomological forecasting

   (d) survey forecasting

7. Which one of the following approaches to forecasting would you employ to project changes in population between 1977 and 2000?

   (a) intuitive forecasting

   (b) theoretical forecasting

   (c) clinical forecasting

   (d) extrapolative forecasting

8. Survey forecasting is typically used to project:

   (a) changes in value profiles

   (b) changes in industrial growth rates

   (c) changes in the content of policies

   (d) changes in government expenditures

9. Forecasts which manifest an exaggerated concern with methods are often described as ________________________.

10. The success of different approaches to forecasting depends on:

   (a) the length of the time interval selected

   (b) the nature of social processes

   (c) the reliability of information

   (d) the personal qualities of persons making forecasts

   (e) all of the above

   (f) none of the above

ASSIGNMENTS

1. Listed below are statements about different policy outcomes. Beside each statement list the most appropriate approach for forecasting policy alternatives. Use the following symbols:

IF = Intuitive Forecasting
IP = Intuitive Planning
NMF = Nomological Forecasting
TF = Theoretical Forecasting
MF = Modelling Forecasting
TP = Theoretical Planning
NRF = Normative Forecasting
AF = Analogy Forecasting
EF = Extrapolative Forecasting
SF = Survey Forecasting
CF = Clinical Forecasting

_____Rates of inflation recorded in the past year are a function of relations between several factors: wages, employment, and the supply of money in the economy.

_____Population has increased at a steady but declining rate in the past decade.

_____Citizens are increasingly dissatisfied with the quality of municipal services.

_____Available information does not permit firm conclusions about the growth of agency caseloads.

_____Available information does not permit firm conclusions about who benefits from social programs.

_____Changes in the occupational structure show that expert knowledge is increasingly valued in a society which is becoming more and more complex.

_____The more scientific elites are involved in policy formation, the less democratic the society.

_____Public works project A costs more than project B, but results in more jobs for the dollar.

_____The agency director is heavily committed to the reorganization, but exercises little influence on such decisions.

_____Nations which participated in the conference recognized their common interest in survival and considered unilateral disarmament for the first time.

2. The table below lists several issue-areas. Across from each issue-area provide an illustration of forecasts based on intuition, theory, and extrapolation. Study Table 4-1 in the unit narrative before you begin.

TABLE 4-4

Bases of Forecasts in Three Issue-Areas

	Basis of Forecast		
Issue-Area	Intuition	Theory	Extrapolation
Health			
Education			
Taxation and Revenue			

3. Study Table 4-5 below, which shows the growth of Gross National Product and energy demand from 1950 to 1970. Note that GNP as a measure of national income is strongly and positively correlated with energy demand, measured in quadrillion BTUs (British Thermal Units). Hence, the demand for energy is dependent for the most part upon the size and grwoth of the economy.

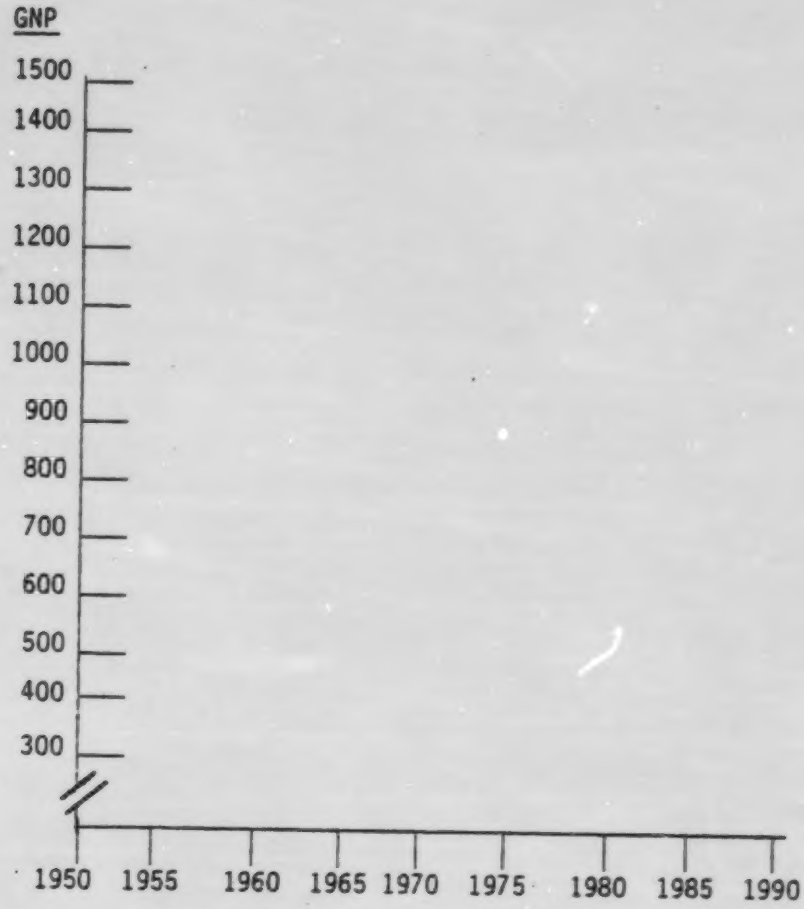
TABLE 4-5

U.S. Gross National Product and Energy Demand by Five-Year Intervals, 1950-1970

Year	Gross National Product (billions constant dollars)	Energy Demand (quadrillion BTUs)
1950	355.3	29.7
1955	438.0	34.3
1960	487.7	38.2
1965	617.8	45.3
1970	720.0	56.0

SOURCE: Adapted from B. Hughes, U.S. Energy, Evnironment and Economic Problems: A Public Policy Simulation (Chicago: American Political Science Association, 1975), Table 5, 24.

Use the data in Table 4-5 to: (1) draw a straight trend line which shows the growth of GNP from 1950-1970 (show the trend with a solid line); (2) draw another straight trend line which extrapolates the growth of GNP to 1990. Show the trend with a broken line whose shape you estimate visually--i.e., do not attempt to calculate rates of change mathematically.



(a) Do you think that the trend in the growth of GNP shown by your trend lines is a realistic estimate of future economic conditions? Why or why not?

(b) Is a continuation of the projected trend desirable? Why or why not?

(c) Do you think that energy demand between 1970 and 1990 will follow the same pattern as that evidenced in the 1950-1970 period? Why or why not?

(d) GNP in 1970 was $720 billion. If precise mathematical projections show that it will grow at a rate of 3.5 percent per annum, what will GNP be in 1990? To make this calculation multiply the base year figure (1970=$720 billion) by the annual rate of growth (3.5 percent, or .035); then add the product ($720 x .035 = $25.2) to the base year ($720 + $25.2 = $745.2). This gives you the projected estimate of GNP for 1971. Repeat the procedure for each year until 1990. What is your estimate of GNP in 1990?

(e) Now go back and place an X at the point on the graph where the year 1990 and your estimate of GNP intersect (i.e., where a line drawn horizontally from estimated GNP crosses the vertical line for 1990). How does your arithmetic estimate of GNP compare with the trend line you estimated visually? How large is the difference, measured in billions of dollars?

(f) What are the advantages of extrapolations calculated with mathematical procedures, as compared with visual estimates, hunches, and educated guesses? What are the possible disadvantages of using such precise procedures? (Hint: Recall the assumptions of extrapolation)

4. Study Table 4.6 on the next page. This table gives projections of Gross National Product, energy demand, air pollutants, and rates of unemployment for two sets of policies. One policy (standard growth), which reflects historical growth patterns in this century, involves an average increase of GNP of 3 percent. The other policy (slow growth) is consistent with the positions of various advocates of "limits to growth" and assumes an average increase of GNP of 1 percent.

(e) Now go back and place an X at the point on the graph where the year 1990 and your estimate of GNP intersect (i.e., where a line drawn horizontally from estimated GNP crosses the vertical line for 1990). How does your arithmetic estimate of GNP compare with the trend line you estimated visually? How large is the difference, measured in billions of dollars?

(f) What are the advantages of extrapolations calculated with mathematical procedures, as compared with visual estimates, hunches, and educated guesses?

4. Study Table 4-6 on the next page. This table gives projections of Gross National Product, energy demand, air pollutants, and rates of unemployment for two sets of policies. One policy (standard growth), which reflects historical growth patterns in this century, involves an average increase of GNP of 3 percent. The other policy (slow growth) is consistent with the positions of various advocates of "limited growth" and assumes an average increase of GNP of 1 percent.

Assume that existing levels of air pollutants (measured in millions of tons) per unit of energy demand (measured in quadrillion BTUs) will remain constant under standard or slow growth policies and minimal government regulation of industry and consumer behavior (loose controls). Now assume that pollutants per unit of energy demand can be reduced by 25 percent under maximal regulation (strict controls), which will increase unemployment rates by 1 and 3 percentage points, respectively, under standard and slow growth policies.

(a) On the basis of data in Table 4-6 calculate the consequences of each of the policies in the year 1990. Note that the first two rows have been completed as an illustration.

Policy	GNP	Energy Demand	Air Pollution	Unemployment Rate
Standard Growth/ Loose Controls	1300.0	101.6	26517.6	5-6%
Standard Growth/ Strict Controls	1300.0	101.6	19888.2	6-7%
Slow Growth/ Loose Controls				
Slow Growth/ Strict Controls				

TABLE 4-6

Projected GNP, Energy Demand and Air Pollutants Under Standard and Slow Growth Policies, 1970-1990

	Standard Growth Policy (3.0%)				Slow Growth Policy (1.0%)			
Year	GNP(1)	Energy Demand (2)	Air Pollutants(3)	Unemployment Rate(4)	GNP(1)	Energy Demands(2)	Air Pollutants(3)	Unemployment Rate(4)
1970	720.0	56.0	14608.0	5-6%	720.0	56.0	14608.0	8-10%
1975	834.6	65.2	17017.2	5-6%	727.2	56.8	14824.8	8-10%
1980	967.2	75.6	19731.6	5-6%	734.5	57.4	14981.4	8-10%
1985	1121.3	87.6	22863.6	5-6%	741.8	57.9	15033.6	8-10%
1990	1300.0	101.6	26517.6	5-6%	749.2	58.5	15268.5	8-10%

NOTE: (1) GNP in billions of constant (1958) dollars.

(2) Energy demand in quadrillion BTUs final demand.

(3) Air pollutants in millions of tons used for electricity production.

(4) Unemployment role as registered unemployed as a percentage of the labor force.

Estimates based on Hughes (1975).

(b) Which of the four policies would you recommend? Why would you recommend it?

(c) Would you change your recommendations if the economy shifted to coal, reducing the dependence on scarce oil reserves and costly imports and increasing the rate of growth of GNP and jobs? Why?

(d) Would you change your recommendations if a shift to coal produced a substantial increase in pollution in the form of particulates (e.g., coal dust), a marked increase in Black Lung disease among miners, a sizable growth of respiratory disease among children under 5, and many additional deaths among people over 60? Why?

5. Ask two persons (at work or at home) to speculate or guess about future changes in GNP, energy demand, pollution, and unemployment. Specifically, ask them whether there will be a large increase (LI), small increase (SI), small decrease (SD), large decrease (LD), or no change (NC). Record these intuitive forecasts below.

Intuitive Forecast

Person	GNP	Energy Demand	Air Pollutants	Unemployment Rate
A				
B				

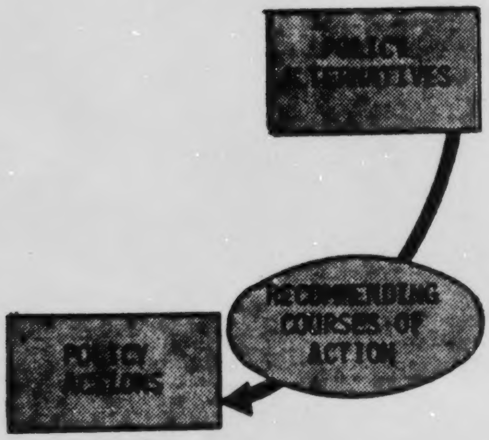
How do these intuitive forecasts compare with those in Table 4-6? Do you have more confidence in the extrapolative forecasts, or the intuitive ones? Why?

ANSWER KEY FOR SELF-TESTING EXERCISE

1. (b) 2. (c) 3. (a) 4. (c) 5. (a) 6. (d) 7. (d) 8. (a)
9. Methodism 10. (e)

UNIT 5

POLICY ACTIONS


POLICY ALTERNATIVES
RECOMMENDING COURSES OF ACTION
POLICY ACTIONS

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INTRODUCTION

Policy actions taken within public organizations presuppose rational choices among alternative courses of action. While the existence of different types of rationality (technical, economic, legal, social, and substantive) raises questions about the meaning of "rational choice," it is clear that some type of choice is essential to resolve public problems. The assumption of this unit is that the systematic analysis of alternative courses of action available to policy-makers can have positive effects on the resolution of policy problems. Public policy problems are sufficiently complex as to benefit from (1) an explicit statement of the preferences of policymakers; (2) a careful exposition of available policy alternatives; and (3) a systematic set of procedures which assist in relating policy alternatives to stated preferences (Zeckhauser and Shaefer, 1968:29). The systematic analysis of alternatives and preferences facilitates "rational" choices, irrespective of the basis of the choice--i.e., choices may be technical, economic, legal, social, or substantive in nature.

In preceding units we have seen that policy-analytic procedures of problem identification, monitoring, forecasting, evaluation, and recommendation depend upon one another--i.e., certain policy-analytic procedures are prerequisites of others. The policy-analytic procedure of recommendation presupposes problem identification, monitoring, forecasting, and evaluation. Recommendation involves choices among alternative courses of action whose consequences have been forecast into the future. Recommendation involves the choice of alternatives which will contribute to the resolution of policy problems.

In this unit we shall consider: (1) the nature of policy recommendation as a policy-analytic procedure, including the various forms of systematic analysis that are employed to make rational choices; (2) the major components of policy recommendation--i.e., objectives, constraints, externalities, time, risk and uncertainty; and (3) the strengths and limitations of systematic analysis as applied to problems of policy recommendation.

LEARNING OBJECTIVES

After completing this module you should be able to:

1. List the sets of key questions that the policy analyst must ask and answer.
2. Define concepts of relative scarcity, opportunity costs, and trade-off.
3. Recognize the uses of indifference curves and indifference maps.
4. Compare and contrast policy-making in the public and private sectors.
5. Distinguish specific, collective, and quasi-collective goods and their relation to public and private policy-making.
6. List major tasks of policy analysis and their relation to policy-analytic procedures.
7. Distinguish between fixed-budget and fixed-output problems in policy analysis.
8. Compare and contrast cost-benefit and cost-effectiveness analysis.
9. Distinguish alternative approaches to the definition of social welfare.
10. Compare and contrast policy goals and policy objectives.
11. List major constraints on the attainment of policy objectives.
12. Recognize the importance of externalities, time, risk and uncertainty in making policy recommendations.
13. Identify the major strengths and weaknesses of systematic procedures for making policy recommendations.
14. Apply systematic procedures of policy recommendation to a problem of your choice.

KEY TERMS AND CONCEPTS

- Relative Scarcity
- Opportunity Costs
- Trade-Offs
- Indifference Curve
- Ordinal Utility Function
- Specific Goods
- Collective Goods
- Quasi-Collective Goods
- Type I Problem
- Type II Problem
- Type III Problem
- Cost-Effectiveness Analysis
- Cost-Benefit Analysis
- Net-Efficiency Benefits
- Willingness to Pay
- Shadow Pricing
- Social Welfare
- Pareto Criterion
- Distributional Benefits
- Goals
- Objectives
- Constraints
- Benefit-Cost Ratio
- Externalities
- Net Present Value
- Social Rate of Discount
- Risk
- Uncertainty

OVERVIEW

Objectives	Tasks	Resources	Evaluation
1. List the sets of key questions that the policy analyst must ask and answer.	----	Unit Narrative	
2. Define concepts of relative scarcity, opportunity costs, and trade-off.	Study Questions 1,2	Unit Narrative	Self
3. Recognize the uses of indifference curves and indifference maps.	Study Questions 3,4	Unit Narrative	Self
4. Compare and contrast policy-making in the public and private sectors.	Study Question 5	Unit Narrative	Self
5. Distinguish specific, collective, and quasi-collective goods and their relation to public and private policy-making.	Study Questions 6,7	Unit Narrative	Self
6. List major tasks of policy analysis and their relation to policy-analytic procedures.	Study Questions 11,12	Unit Narrative	Self
7. Distinguish fixed-budget and fixed-output problems in policy analysis.	Study Question 13	Unit Narrative	Self

Objectives	Tasks	Resources	Evaluation
8. Compare and contrast cost-benefit and cost-effectiveness analysis.	Study Questions 8, 9, 10	Unit Narrative	Self
9. Distinguish alternative approaches to the definition of social welfare.	Study Questions 14, 15	Unit Narrative	Self
10. Compare and contrast policy goals and policy objectives.	Sutdy Question 16	Unit Narrative	Self
11. List major constraints on the attainment of policy objectives.	Study Questions 17, 18	Unit Narrative	Self
12. Recognize the importance of externalities, time, risk and uncertainty in making policy recommendations.	Study Questions 19, 20, 21	Unit Narrative	Self
13. Identify the major strengths and weaknesses of systematic procedures for making policy recommendations.	Study Questions 22, 23, 24	Unit Narrative	Self
14. Write an essay in which you apply systematic procedures of policy recommendation to a problem of your choice.	Unit Assignment		Self and Instructor

THE NATURE OF POLICY RECOMMENDATION

When policy analysts offer recommendations they engage in apparently simply logical processes involving three interrelated components: (1) the definition of a problem requiring action; (2) the analysis of available courses of action to resolve the problem; and (3) the choice of the alternative which results in a preferred outcome. This process may be diagrammed as follows (Figure 5-1), where the first alternative (A_1) yields one outcome (0_1); the second alternative (A_2) yields another outcome (0_2); and (0_1) is greater than 0_2 on some scale of values. Having this information the policy analyst will find no difficulty in choosing A_1 as the preferred alternative.

$$A_1 = 0_1$$
$$A_2 = 0_2$$
$$0_1 > 0_2$$
$$\therefore \text{ choose } A_1$$

FIGURE 5-1

A Simple Model of Choice

In the world of the practicing policy analyst problems of choice are far more complex. The public policy analyst must ask and provide answers to six sets of questions which go far beyond our simple model of choice:

1. Objectives. What is wanted? How can objectives (ends) be defined explicitly? How are objectives to be measured and perhaps quantified?

2. Costs. What does it cost to attain a given objective? How are costs to be measured and perhaps quantified in order to compare them with benefits? What other objectives must be foregone because of the price paid to attain a given objective?

3. Constraints. What factors constrain or limit the attainment of objectives? What alternatives must be ruled out because of these constraints? Are such constraints as budget size, legal requirements, and bureaucratic opposition fixed or variable?

4. Externalities. What side effects or spillover effects will result from the attainment of objectives? Are side effects positive, negative, or both? Are externalities which have not been included in the analysis of costs and benefits sufficiently important to modify the choice of alternatives?

5. Time. Will all consequences of choice occur immediately? Will some consequences be spread out into the future? Will the value of benefits and costs change over time?

6. Risk and Uncertainty. How certain is it that predicted outcomes will actually occur? How much risk is involved in choosing a particular alternative?

The above questions reflect the complex nature of policy recommendation. They also point to the importance of the principle of relative scarcity--i.e., resources required to attain one objective can always be used to attain some competing objective. Because it is not possible to attain all objectives simultaneously, it is necessary to select some objectives and forego others. Almost every choice has its opportunity costs--i.e., the amount which it costs us to forego a particular objective (e.g., a cure for cancer) by investing in the attainment of some other desired objective (e.g., better schools). In most situations involving problems of choice it is not possible to proceed on the assumption that the attainment of objectives is cost-free. In fact, many of the most important policy problems required self-conscious trade-offs between competing objectives--i.e., choices which involve the attainment of one objective at the expense of another.

In Figure 5-2 below the idea of trade-offs is illustrated with reference to highway maintenance and health care in three hypothetical communities. Highway maintenance (expressed as units of highways paved) is measured on the vertical axis. The horizontal axis measures health care in terms of units of service.* Point A in Community II marks an output of paved highways of 8.0 units and an output of health services of 4.0 units. Curve II-II is called an indifference curve, which is a graphical representation of a policy analyst's ordinal utility function--i.e., a summary of the policy analyst's preferences for one objective in relation to the other. Each of the three curves on the map (called an indifference map) represents a different level of ordinal utility. For example, as we move toward the northeast (upper right) on the indifference map, we find higher levels of ordinal utility--i.e., curve I-I produces more units of health care and paved highways than curve II-II, which produces more than curve III-III.

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*Note that the scales used to measure highway maintenance and health care are arbitrary and based on fictitious data. They are designed for illustrative purposes only.

Between any two points on the same indifference curve (e.g., between A and B) the policy analyst is "indifferent"--i.e., equally satisfied, given that (s)he is willing to trade highway maintenance for health care. The negative slope of the curves shows that the policy analyst is willing to give up highway maintenance in order to achieve more health care, and vice versa. The steepness of the curves shows that the policy analyst is willing to engage in trade-offs between the two objectives. The steeper the curves the greater the amount of highway maintenance will be sacrificed for one additional unit of health care. At point A in Community II more highway maintenance will be traded for an additional unit of health care than at point B. Northeasterly movements across the indifference map are always desirable, since they result in continually higher levels of utility. Thus, policymakers would prefer any combination of outputs represented by different points along curve II to any combination represented along curves II-II and III-III.

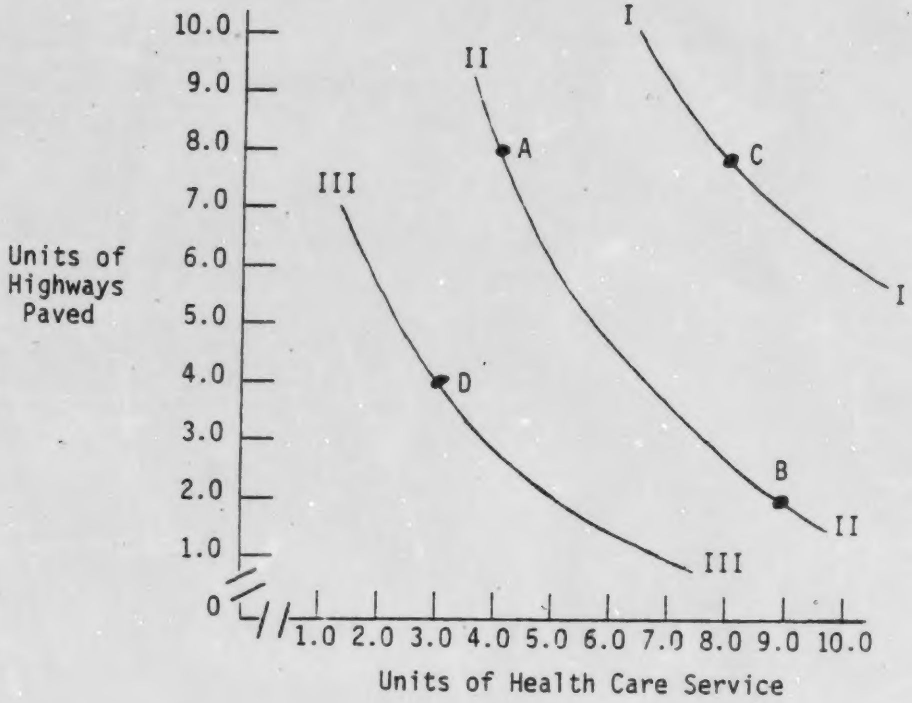

FIGURE 5-2

Trade-offs Between Highway Maintenance and Health Care In Three Hypothetical Communities

SOURCE: Fictitious data

In the above example a policy analyst might be required to make recommendations among one of four alternative investment projects--i.e., A, B, C, and D, two of which (A and B) are in the same community. The policy analyst should recommend project C, since it results in greater overall utility; project D is clearly least desirable. Note that it is not possible to make a choice between projects A and B, since the policy analyst is "indifferent" to various combinations of highway maintenance and health care between the two points on curve II-II. Note also that the policy analyst would not be indifferent to points above or below points A and B on curve II-II, since these points represent the limits to which (s)he will go in making trade-offs.

The concept of trade-offs is particularly important in public policy analysis, since one of the essential differences between public and private policymaking is the existence of group conflict among multiple policy actors in the public sector. There are at least three essential differences between public and private policy-making (Hinrichs and Taylor, 1972:4-5):

1. The Nature of Public Policy Processes. Policy formation in the public sector is a group process involving bargaining, compromise, and conflict among citizens' groups, legislative bodies, executive departments, and business firms. There is no single producer or consumer of goods whose profit or welfare is to be maximized. The presence of multiple policy actors makes problems of public choice far more complex than in the private sector.

2. The Nature of Public Policy Goals. Public Policy goals are generated from group processes. They are therefore more complex, dynamic, and difficult to define than those in the private sector. Group goals may require some attempt to calculate "net" benefits and costs among various members (e.g., the satisfaction of the majority minus the dissatisfaction of the minority). When a group makes decisions some members may gain or lose more than others. In some cases, one person's gain is another's loss, thus creating a situation of conflict which is not easily resolved.

3. The Nature of Public Goods. Public and private goods may be classified into three groups: specific goods, collective goods, and quasi-collective goods. Specific goods are finite and exhaustible. They are also exclusive, in the sense that the person who owns the goods possesses legal rights to exclude others from their benefits. The consumption of such specific goods as automobiles, electrical appliances, and industrial machinery is limited to one person at a time (including legal persons, such as corporations). The allocation of specific goods can be made on the basis of market prices, as determined by supply and demand. Collective goods may be consumed by everyone; no person is excluded from the "consumption" of environmental protection, social security, and public health. The allocation of collective goods cannot be made according to market prices, since "laws" of supply and demand are not operative. Quasi-collective goods are specific goods whose production has significant collective spillover effects for society. Although goods such as elementary education, police protection, and health care might be produced exclusively within the private sector, the "externalities" associated with their production are

> deemed sufficiently important to society to justify public programs which provide a greater quantity at a lower price.

Organizations in the public and private sector[3] produce each of the three types of goods. Nevertheless, the public sector is primarily occupied with the provision of collective and quasi-collective goods such as defense, education, social welfare, transportation, public safety, environmental protection, recreation, and energy conservation. By contrast, the private sector is primarily concerned with the production of specific goods (Figure 5.3). The nature of such goods differs--and so do the procedures for their pricing and optimal allocation in society. The price of environmental protection or public health cannot be determined in the same way as the price of an electric toothbrush or hair dryer; nor are societies willing to leave the allocation of education, health, and social welfare to decisions in the marketplace.

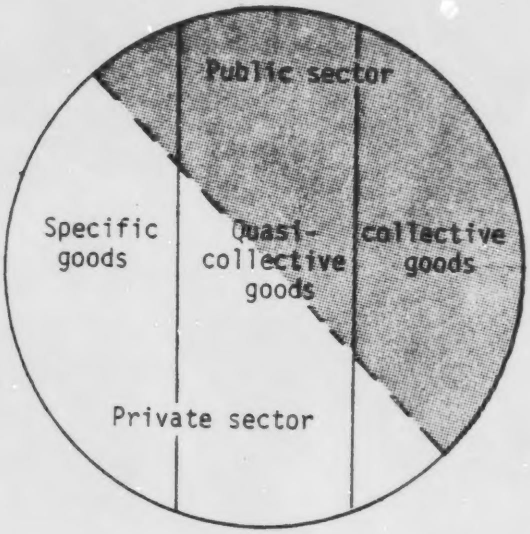

FIGURE 5-3

Three Types of Goods in the Public and Private Sectors

SOURCE: Hinrichs and Taylor (1972:5)

In dealing with problems of trade-offs between competing objectives, public policy analysts seek to use scarce means to attain virtually limitless ends. In order to link ends (objectives) and means (alternatives) public policy analysts must accomplish several tasks:

1. The conversion of values into specific objectives, usually by operationally defining and measuring preferred policy outcomes.

2. The specification of the target population which is to be the recipient of benefits associated with policy outcomes.

3. The collection of information on the costs and consequences of each alternative course of action. Information used for monitoring and forecasting may be gathered from a variety of sources--management information systems, pilot studies, experiments, surveys, previous policies, reports, and informed judgment.

4. The specification of alternative courses action available to achieve objectives, including the recognition of constraints to their achievement--e.g., political opposition, legal limitations, technical know-how, budgetary levels. Inaction should also be regarded as an alternative.

5. The assessment of costs and consequences of different courses of action, including the analysis of different benefits or outputs which will accrue to target populations, as well as significant externalities--i.e., positive and negative side effects and spillovers.

6. The comparison of alternatives in terms of their probable costs and benefits, including trade-offs between different combinations of alternatives.

7. The recommendation of one or more preferred alternatives, including the preparation of a "briefing package," "staff paper," or "executive summary" for those who will participate in making a final decision and engage in policy actions.

The sequence in which policy analysts actually accomplish these tasks will vary in practice--in some cases the collection of information will precede other tasks, while in other cases the specification of a target population will be accomplished prior to the definition of objectives. In Figure 5-4 below these various tasks have been related to the five policy-analytic procedures discussed thus far in preceding units.

In accomplishing the set of tasks discussed above policy analysts must contend with three kinds of problems surrounding the costs of alternative courses of action. (1) In problem type I policy analysts are confronted with a fixed budget, which makes it necessary to maximize benefits within the limits of available resources. For example, given a budget of $1 million the health policy analyst will seek to find the optimum mix of health care delivery vehicles to improve various health indices in the community (e.g., morbidity rates, live births, disability days averted). (2) In problem type II policy analysts are confronted with fixed outputs, which makes it necessary to minimize costs to achieve a specified level of outputs or benefits. For example, given a specified level of municipal transportation services the problem is to find the least cost "mix" of bus, monorail, and subway transportation. (3) In problem type III neither costs nor benefits are fixed--i.e., policy analysts are confronted with variable budgets and outputs. For example, the President's choice of an optimal budget and preferred government outputs is a type III problem. A thorough and competent analysis may often require approaching problems in terms of variable budgets (costs) and outputs (benefits). Here the policy analyst may attempt to determine the effects of small or incremental changes in budgetary levels on outputs, and vice versa.

In each of the these problems it is necessary to compare costs and outputs in a systematic manner. There are several different techniques employed by policy analysts for this purpose, two of which are described below:

1. Cost-Effectiveness Analysis. Policy analysts attempt to determine the costs of each alternative in achieving a fixed or equal outcome (equal-effectiveness analysis). By contrast, analysts may attempt to determine the outcomes of each alternative, given a fixed or equal cost (equal-cost analysis).

2. Cost-Benefit Analysis. Policy analysts attempt to determine the benefits to society of expenditures on each of several alternatives. Cost-benefit analysis may be used for fixed budget and fixed output problems. The essential difference between cost-effectiveness and cost-benefit analysis lies in the ways that outcomes are measured--cost-benefit analysis measures outcomes (benefits) in monetary terms, whereas cost-effectiveness analysis does not. For example, a cost-effectiveness analysis of manpower training programs would seek to

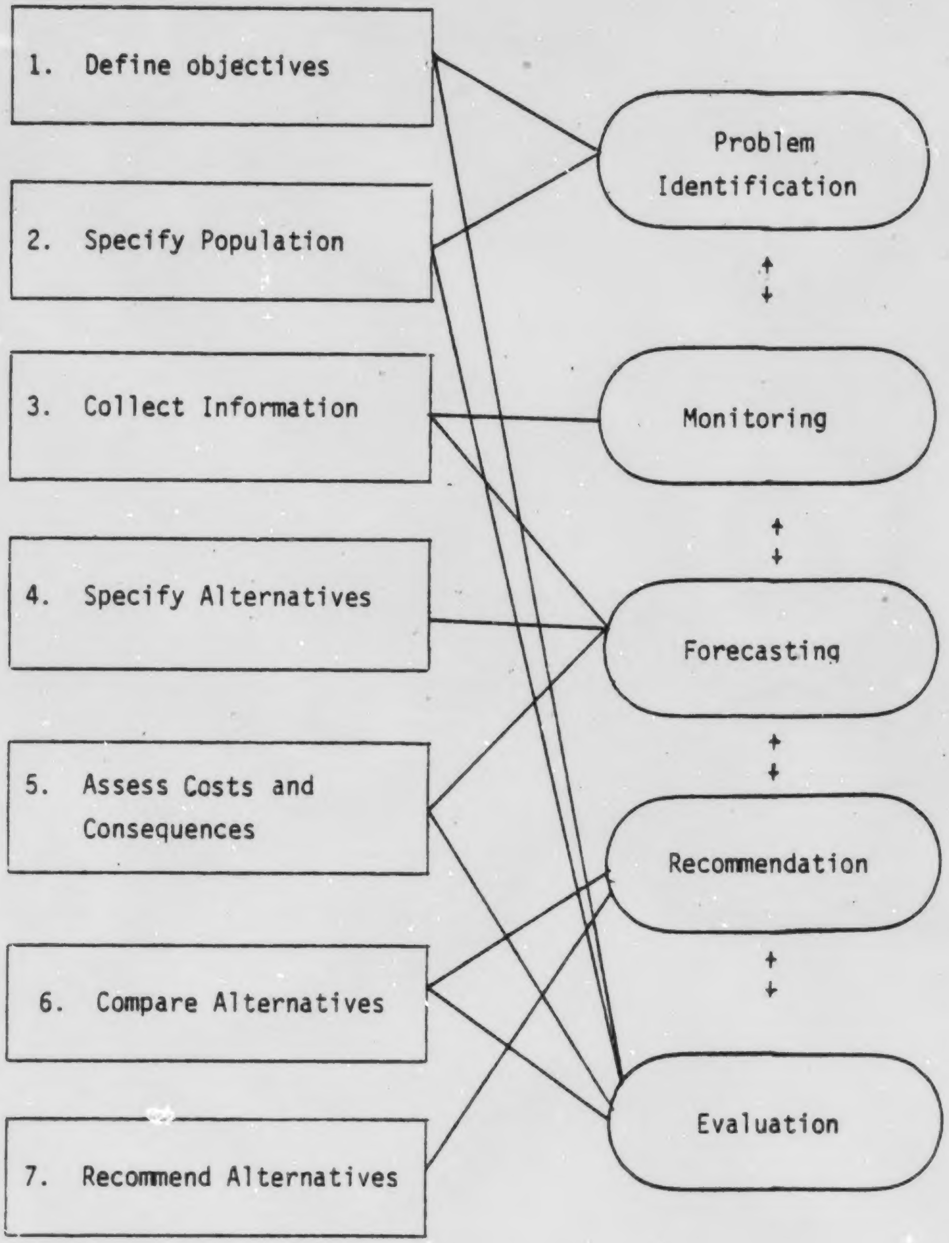
1. Define objectives
2. Specify Population
3. Collect Information
4. Specify Alternatives
5. Assess Costs and Consequences
6. Compare Alternatives
7. Recommend Alternatives
Problem Identification
Monitoring
Forecasting
Recommendation
Evaluation

FIGURE 5-4

Tasks in Policy Analysis Related To Policy Analytic Procedures

> determine the percent reduction in unemployment for every dollar spent. By contrast, a cost-benefit analysis would attempt to estimate how much income would be earned by newly employed graduates of the program for every dollar spent.

A basic difficulty in comparing costs and benefits is using the same system of values. Valid comparisons of costs and benefits require that inputs and outputs be assigned values in the same unit of measurement. While monetary values would appear to provide a solution to this problem, certain basic differences between the private and public sectors make monetary values a poor or inadequate yardstick.

> Much difficulty in public decisions occurs because many of the outputs and inputs of public undertaking accrue to and are contributed by a number of entities, not just one as in the case of personal or business decisions. When a businessman contemplates an investment decision, he worries only about the revenues which the investment will bring into his firm...The public decision maker, on the other hand, must be concerned with the values placed on the program's outputs by each of the recipients of the output of the public program and with the value of the costs incurred by each citizen who is forced to sacrifice something to support the undertaking (Hinrichs and Taylor, 1972:9).

Cost-benefit analysis is the technique most frequently used to evaluate public programs. In a cost-benefit analysis the analyst often attempts to use monetary values to determine the net efficiency benefits of a program, defined as gross benefits minus gross costs. Gross benefits are measured in terms of the total willingness to pay of all persons who prefer to have the program. Costs are measured by the monetary value of goods and services devoted to the program. In measuring net efficiency benefits analysis sometimes use the market value (i.e., current selling price) of the goods produced and consumed in a program as the basis for valuing costs and benefits. Nevertheless, the use of market value as a yardstick will not provide a valid measure of costs and benefits unless several conditions are satisfied (Zeckhauser and Shaefer, 1968:69): (1) There are no externalities (i.e., significant side or spillover effects) associated with the consumption of any good or service produced by a public program; (2) the size of the program is not sufficiently great as to alter significantly the prices of goods produced; and (3) all benefits produced and all resources used have prices which have been established through the free interplay of supply and demand on the market.

For a variety of reasons many public programs fail to satisfy one or more of the above conditions. For example, manpower training programs of sufficient size may produce large numbers of newly employed workers; at the same time new employment creates additional income, higher consumption, lower crime rates, etc., making it extremely difficult to estimate the "market value" of the social benefits derived from the program. Because market prices are inadequate measures of net social benefits, policy analysts often use shadow pricing to estimate benefits--i.e., procedures whereby analysts adjust faulty or distorted market prices by making subjective estimates of the real but unknown value of public goods. Shadow pricing may be used in cases where goods are transferred from one government agency to another (internal transfer pricing); where monopolistic pricing practices exist; and where government taxes, regulations, or subsidies distort market prices such that changes in supply and demand do not reflect the present or future prices of goods produced by a government program. Perhaps the best example of the need for shadow pricing comes from the issue-area of environmental policy: What is the market price of clean air and pure water? How can we calculate the social benefits of environmental protection in monetary terms?

STUDY QUESTIONS

1. How many public policy goals in areas of health, welfare, labor, defense, and education do not involve trade-offs between competing objectives? Illustrate your response.

2. How would you go about calculating the opportunity costs of sending a man to the moon?

3. What would be the implications of a positively sloped indifference curve? [Hint: Think in terms of trade-offs]

4. Indifference maps are a way to represent graphically the subjective preferences of a policy-maker, rather than the objective possibilities of actually being able to produce goods at a certain rate. In Figure 5-2 what would happen if the maximum production of highway maintenance and health care is plotted at the intersection of 2 and 3 units? Which of the three indifference curves would express the most realistic preferences?

5. To what extent do policy processes in the private sector actually involve single policy actors? What factors present in postindustrial policy environments might make distinctions between the "public" and "private" less convincing than in previous periods of history?

6. List examples of specific goods, collective goods, and quasi-collective goods. Who are the primary beneficiaries of the goods you have listed?

7. List examples of collective goods produced in the private sector. Now list examples of specific goods produced in the public sector. [Hint: Think about the controversies over the role of the Federal Communications Commission and the U.S. Post Office]

8. In analyzing the outcomes of community health care the analyst might use cost-benefit or cost-effectiveness analysis. Provide examples of measures of benefits and effectiveness, respectively.

9. In a flood control project farmers and owners of railroads and trucking firms may have a high willingness to pay, expressed in terms of the monetary value of expenditures they would make (if they could) in order to save crops and maintain agricultural production. In a federal job retraining project, however, it is not so easy to measure gross benefits in terms of willingness to pay. Why are the two projects so different?

10. Shadow pricing is a way to find a "surrogate" for market prices (a surrogate is a kind of "stand-in" for something else). What problems might arise in estimating shadow prices of social security, health, welfare, and a clean environment?

COMPONENTS OF POLICY RECOMMENDATION

In the preceding section we reviewed six sets of questions that the policy analyst must ask and answer in order to make policy recommendations. Now we will explore in more detail several specific components of policy recommendation: objectives, constraints, externalities, time, and risk and uncertainty.

Objectives. In explicitly defining objectives the public policy analyst is acutally seeking a way to measure social welfare--i.e., the collective sense of satisfaction experienced by members of a community. In general there are five types of social welfare:

1. Individual Welfare. The policy analyst may attach value only to individuals, thus ignoring societies, communities, regions, or groups. Here the objective is to maximize the welfare of individuals, without reference to other individuals who may lose. The analyst who estimates welfare by attaching value to the preferences of individual businessmen specifies welfare in individual terms.

2. Total Welfare. The policy analyst may attach values to all individuals, attempting to maximize the welfare of everyone simultaneously. For a variety of reasons public policy decisions do not permit everyone to benefit at once. The maximization of total welfare is impossible in principle, since someone will always lose from a particular decision regarding the production of collective goods (Arrow's Impossibility Theorem).

3. Minimum Welfare. The analyst here attempts to maximize welfare such that at least one individual gains, while no person loses. This approach employs the Pareto criterion, which states that one social state is better than another if at least one person is better off, and no one is worse off. A Pareto optimum is a social state in which it is not possible to make any person better off without making another person worse off--i.e., we have reached the "limit" in increasing social welfare.

4. Net Welfare. The analyst seeks to maximize net welfare, defined as gross benefits to some persons minus gross costs to others. If the gains outweigh the losses, then social welfare is maximized. This approach is identical to the net efficiency benefits approach to cost-benefit analysis discussed above. The central problem with this approach is that it overlooks considerations of distribution (e.g., of income) in society.

5. Distributive Welfare. In cases where it is possible to define net-efficiency benefits the analyst may still wish to measure benefits that result from a more equitable distribution of income or resources in a community. Public programs (e.g., income maintenance) sometimes yield zero net-efficiency benefits, yet result in a better distribution of income among members of a community. One way to establish redistributional benefits is to measure the net benefits to the group to which the analyst wishes to redistribute income. In Table 5.1 below we compare net-efficiency and redistributional benefits among two groups (local businessmen and the urban poor) in two hypothetical programs. Program II is the best choice, given that the objective is to maximize redistributional benefits to the urban poor. Note that Program II also results in zero net-efficiency benefits for the community and a net loss of $400 to businessmen.

TABLE 5-1

Comparison of Net-Efficiency and Redistributional Benefits for Two Programs

Program	Targets	Benefits to	Costs to	Net-Efficiency Benefits	Redistributional Benefits
I	Businessmen	$1000	$900	$100	NA
	Urban Poor	500	300	200	200
	Total	1500	1200	300	200
II	Businessmen	500	900	-400	NA
	Urban Poor	1000	600	400	400
	Total	1500	1500	0	400

NOTE: NA = not applicable. Given that the objective is to redistribute income among the urban poor, redistributional benefits are not relevant for businessmen.

SOURCE: Fictitious data.

The policy analyst--no matter what criterion of social welfare (s)he uses--must somehow find a way to define objectives. In this context it is especially important to distinguish goals from objectives. While public goals and objectives each set forth the aims of government in terms which are clearly defined, outcome oriented, and specific to particular programs (employment, health, welfare, etc.), goals and objectives differ in important ways. Goals, for example, are usually not measurable in quantitative terms, while objectives are--the goal of a maintaining a healthy population is not the same as the objective of reducing infant deaths per 1,000 live births. Essential differences between goals and objectives are summarized in Table 5-2 below.

TABLE 5-2

Comparison of Goals and Objectivies

Basis of Comparison	Characteristics	
	Goals	Objectives
Similar	1. Terminology clearly defined 2. Outcome oriented 3. Program specific	1. Terminology clearly defined 2. Outcome oriented 3. Program specific
Different	1. Not measurable in quantitative terms 2. Partially operational 3. Extensive cross-departmental impact 4. Time period unspecified 5. Linked to problems characteristic of most jurisdictions 6. Broad purposes 7. Identify broad target population 8. Developed at highest levels within policy structures	1. Measurable in quantitative terms 2. Fully operational 3. Limited cross-departmental impact 4. Time period specified 5. Linked to problems characteristic of specific jurisdiction 6. Specific aims 7. Identify specific target population 8. Developed at intermediate and lower levels within policy structures

One particularly important contrast between goals and objectives is the organizational level at which they are defined. Goals tend to be developed at the highest levels within policy structures, and are therefore more general than specific objectives generated at lower levels--e.g., within operating programs within public agencies. The relation between goals and objectives and levels within policy structures is illustrated in Figure 5-5.

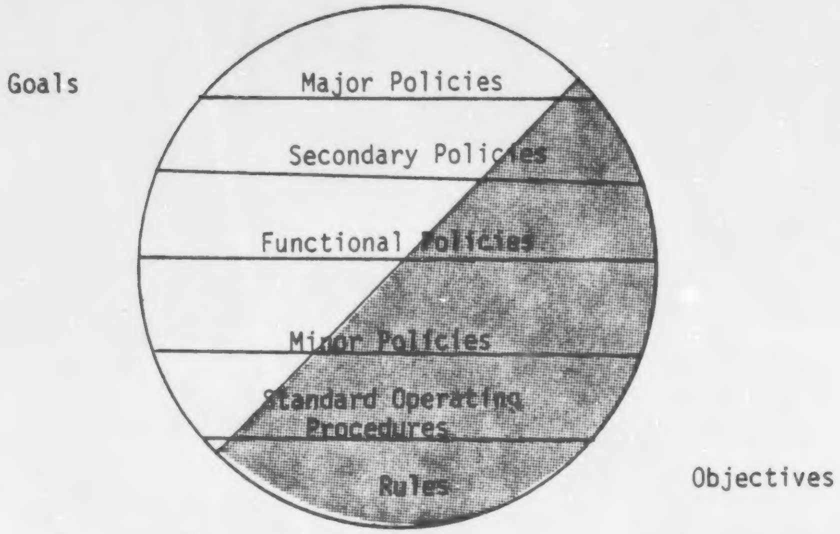

FIGURE 5-5

The Relation Between Goals And Objectives
And Levels Within Policy Structures

Constraints. After a policy analyst has defined objectives in operational terms, it is necessary to consider possible limitations to their attainment. In addition to constraints present in the form of limited or finite resources--which we reviewed above in terms of ideas of relative scarcity, trade-offs, and opportunity costs--there are at least six additional factors which may limit the attainment of objectives and reduce the feasibility of particular policy alternatives.

1. *Physical Constraints*. Desired outcomes may be limited by the state of development of knowledge and technology, as when public health programs are constrained by inadequate knowledge and techniques for diagnosing and treating communicable diseases.

2. *Legal Constraints*. Public law, property rights, and agency regulations can limit the feasibility of possible alternatives. Legal constraints often decrease social welfare, as, for example, when reporting requirements of federal agencies place an unnecessary burden of paperwork and "red tape" on programs designed to produce better services for the public.

3. Administrative Constraints. The implementation of public programs requires skilled personnel to administer them, as well as organizations which function at high levels of effectiveness. For example, public programs with sound objectives and high benefit-cost ratios may never actually attain predicted levels of performance, largely because administrative constraints seriously impede the implementation of alternatives.

4. Political Constraints. Opposition to public programs, as well as the desire to maintain processes of decision-making in their present form, may serve as a serious constraint on the acceptance as well as implementation of given programs. For example, the enactment and application of legislation to control the pollution of the physicial environment (air, water, sound) is severely limited by processes of "incremental" decision-making--i.e., choosing alternatives which differ as little as possible from the status quo in order to maintain political consensus.

5. Distributional Constraints. Public programs, such as those concerned with social security, unemployment, and job retraining, are often established to maximize net-efficiency as well as redistributional benefits. The redistribution of income may limit the attainment of objectives of overall economic growth (e.g., rising per capita income), and vice versa.

6. Budgetary Constraints. Government budgets are limited, thus requiring that objectives be considered in the context of scarce financial resources. Fixed budgets create type I problems for policy analysts, who are often obliged to maximize benefits within the limits of available resources.

In considering budgetary constraints one of the key problems faced by the policy analyst is to determine whether (s)he is dealing with a type I, II, or III problem. The use of two common measures of social welfare--viz., net-benefits and benefit-cost ratios--is directly determined by whether we are dealing with fixed budgets or fixed outputs. A common problem faced by the policy analyst is whether to use the net-benefit or benefit-cost ratio approach to measure the benefits of alternative programs. In Table 5-3, for example, three alternative programs are compared in terms of benefit-cost ratios and net-benefits. Using the net benefit approach the analyst would recommend Program III, since it produces the greatest net benefits. By contrast, Program I is the preferred alternative using the benefit cost ratio approach, since it yields the highest ratio of benefits to costs. Two general rules may be followed in choosing between the two approaches: (1) If there is a fixed budget but no constraints on the number of projects which may be undertaken, use the benefit-cost ratio approach. In Table 5-3, for example, the analyst might be limited to 40 units of costs to achieve maximum benefits. In this case the analyst would recommend that Program I be repeated 10 times, since this would yield the highest ratio of benefits to costs (10 to 1). (2) If there is no fixed budget, but the analyst must choose only one of three mutually exclusive programs, the net-benefit approach should be used to recommend Program III.

TABLE 5-3

Comparison of Net-Benefit and Benefit-Cost Ratio Approaches For Three Programs

Program	Benefits	Costs	Benefit-Cost Ratio	Net-Benefit
I	40	4	10	36
II	64	8	8	56
III	100	40	2.5	60

SOURCE: Zeckhauser and Shaefer (1968:73)

Externalities. Externalities are significant side effects or spillovers which result from public programs. One of the important questions for the analyst is whether particular factors are "internal" or "external" to the problem. A simple example of financial externalities and internalities is provided below in Table 5.4, which shows total, external, and internal costs of alternative delivery programs for maternal care. If all three programs were equally effective (a doubtful assumption) the analyst at the state level would have no difficulty in recommending Program I, since it requires only 10 percent of total costs to be paid by the state. Here the analyst would be taking into account a significant "externality"--i.e., federal cost-sharing. At the same time if Program II is more effective than Program III, but Program I is least effective, the analyst would not be able to choose simply on the basis of the state share (48.3%). In this case the analyst may wish to look at the total costs of the two programs, recommending project II because its higher level of effectiveness justifies added costs to the state of $11 per patient (i.e, $96-85 = $11). Note also that what is an optimal recommendation at the state level may not be so at the federal level. If all programs are equally effective the policy analyst at the federal level will recommend Program III because its total costs are lowest.

TABLE 5-4

Total, External, and Internal Costs of Alternative Delivery

(costs per patient)

Cost Category	Program					
	I Maternal and Infant Care Project		II Neighborhood Health Center		III Private MD	
Total Cost	$313	100%	$199	100%	$175	100%
Federal Share ("externality")	282	90	103	51.7	90	51.7
State Share ("internality")	31	10	96	48.3	85	48.3

SOURCE: Adapted from Burt (1974:35)

In general, there are four kinds of external effects of spillovers to which policy analysts should be sensitive (Hinrichs and Taylor, 1972: 18-19):

1. Production-to-production spillovers: the outputs of one program often affect the outputs of another program, as, for example, when successful alcoholism and drug treatment programs result in a decrease of law enforcement activities.

2. Production-to-consumption spillovers: the outputs of a program sometimes affect the quality of goods or services consumed by the public, as when publicly funded highway projects displace residents from their homes and disturb the natural environment.

3. Consumption-to-consumption spillovers: the consumption activities of public programs affect the consumption of citizens, as where the erection of a large government office building in a downtown area makes it impossible for local citizens to find adequate parking.

4. Consumption-to-production spillovers: the consumption activities of public programs affect the production activities of other public and private programs, as when the location of a government agency in a particular area improves the market for local businessmen.

In making policy recommendations the analyst should attempt to take each of these types of externalities into account. Externalities--whether positive or negative in value--can have important implications for the validity of any policy recommendation.

Time. The policy analyst must carefully incorporate considerations of time into the choice of policy alternatives. Considerations of time are important for two main reasons: (1) the value of costs and benefits is not constant--it will change in future years; and (2) the short-term and long-term effectiveness of a policy may be quite different.

In cost-effectiveness analysis we may use fixed outcomes (equal-effectiveness) or fixed costs (equal-costs) as a basis for comparing and recommending alternatives. Cost-effectiveness analysis--as distinguished from cost-benefit analysis--does not seek to estimate "social welfare" on the basis of income. Cost-effectiveness analysis, rather, attempts to measure the attainment of objectives in non-monetary units--e.g., units of service, quality of goods, value of activities, etc. Whether the analyst is measuring effectiveness or benefits, however, (s)he must take time into consideration. Thus, for example, a cost-effectiveness analysis of health care programs will yield radically different recommendations, depending on the number of years included in the analysis. Table 5.5 shows that the effectiveness of a comprehensive community health care program increases over time. After a period of five years the new program would result in a substantial improvement of key effectiveness indicators, as compared with the baseline rates without the new program. Note, however, that estimates of effectiveness in the first and second years are zero or negligible.

TABLE 5-5

Estimated Effectiveness of Comprehensive Community Health Care Program Over a Five-Year Period

Indicator of Effectiveness	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total 5 years	Baseline Rate Without Program	Estimated Rate After 5 Years
Hospital days saved	0	0	4,000	7,000	10,500	21,500	1,370/1,000	960/1,000
Hospital admissions averted	0	0	200	350	500	1,050	140/1,000	120/1,000
Emergency room visits averted	0	150	350	500	500	1,500	140/1,000	120/1,000
Disability days averted								
---Restricted activity	0	26,000	50,000	86,000	112,000	274,000	22/year	17.6/year
---Bed disability	0	14,000	37,000	50,000	63,000	164,000	10/year	7.5/year
---Work loss	0	10,000	20,000	30,000	40,000	100,000	8/year	6.4/year

SOURCE: Adapted from Burt (1974:32) and Department of Health, Education, and Welfare, Delivery of Health Services for the Poor (Washington, D.C.: U.S. Government Printing Office, December, 1967).

The policy analyst who is using either cost-effectiveness or cost-benefit analysis must take time into consideration in another way--viz., by taking into account changes in target populations who will be served by a particular program. A reduction in the target population over time may result in significantly lower costs, as well as higher estimates of effectiveness. If health effectiveness indicators are measured on a per 1,000 population basis (e.g., hospital days averted per 1,000) and the total target population decreases, then measures of effectiveness will show an increase in attaining objectives. If, on the other hand, there are differential rates of change among different segments of a target population, cost and effectiveness measures will vary. Thus, for example, Table 5.6 shows that program targets in upper and middle income groups will decline over the 1977-1982 period, while program targets in the lower income category will increase rapidly.

TABLE 5-6

Projection of Target Population
(in thousands)

	Year					
Population	1977	1978	1979	1980	1981	1982
Total	400	395	389	382	375	364
--Upper Income	40	39	38	37	36	35
--Middle Income	280	266	251	235	219	199
--Lower Income	80	90	100	110	120	130

When the analyst attempts to measure benefits and costs in monetary terms a whole new set of problems arises. When time enters the analysis it is necessary to recognize that a dollar has a specific value only on a specific date. At a 5 percent interest rate, yesterday's dollar is worth $1.05 today, $1.1025 tomorrow, and $1.1576 the day after that. Similarly, tomorrow's dollar is worth only $.95 in today's real money value, since monetary values are generally a function of time. In effect, future benefits and costs should not be treated as equal in value to present benefits and costs. One way to estimate today's value of future costs and benefits is to employ discounting--i.e., a procedure whereby the monetary value of future costs and benefits is reduced to the net present value of benefits. In order to "discount" benefits to their present value analysts often use the social rate of discount, which is simply a measure of the present value of benefits after an appropriate rate of interest has been applied to the reduction of their future value. For example, $100 of 1978 employment benefits derived from a manpower training program will be worth $95 today (in 1977), assuming that money is losing its value through inflation at a rate of 5% per annum. The difficulty with the social rate of discount and other precedures* is that it is extremely difficult to select an "unbiased" discount rate. Should the rate of discount be obtained on the basis of current bank interest rates? Interest rates on government bonds? Or should certain benefits (e.g., health, clean air, public safety) not be discounted so heavily (if they are to be discounted at all)? In other words, it is difficult to put a price tag on public goods, and even more difficult to estimate their monetary value over time.

> Interest rates usually are important but there may be no one correct rate. The rate or rates to use depend on changing times, capital productivity, objectives, benefits and costs included and excluded in the analysis, and the level of optimization. Once more the answer rests on the initial determination as to how badly one wants consumption or investment, now or later, in the public or the private sector (Hinrichs and Taylor, 1972:23).

Risk and Uncertainty. In a world of complete certainty the policy analyst's estimates of costs and benefits--or costs and some non-monetary measure of effectiveness--would be "error free." That is the analyst would be absolutely (100 percent) right in his or her forecasts about the outcomes of alternative courses of action. In the world of the practicing policy analyst, however, risk and uncertainty are always present. Policy problems under risk are those in which the analyst is able to define margins of error. For example, the analyst may know that the projected outcomes of Program I are likely to occur 99 percent of the time (there is, therefore, a 1 percent chance that the analyst is wrong). Policy problems under uncertainty are those where the analyst knows that (s)he will be wrong a certain percentage of the time, but does not know what that percentage might be. For example, the analyst might be wrong 5, 10, or 20 percent of the time. In dealing with uncertainty the analyst has several options: (1) to choose alternatives with the smallest possible loss (minimax); (2) to choose alternatives with the minimum possible gain (maximin); (3) to discount future benefits more than future costs; and (4) to use a more limited time period for the comparison of program alternatives, thus eliminating some of the unknown effects of time and an uncertain future. Whichever procedure is used (and there are other options) the analyst must take risk and uncertainty into account, since most policy problems are by no means "well-structured" ones. In fact, many of the most important problems are either "simply structured" (thus permitting procedures for dealing with uncertainty) or "ill-structured." In the latter case the problem is not to adopt the appropriate procedure for dealing with risk and uncertainity, but to define the nature of the problem itself.

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*These other procedures, including "internal rate of return" and "net terminal value," are discussed in Pearce (1971:35-51) and Zeckhauser and Shaefer (1968:84-92).

11. Public policy problems are artificial, subjective, dynamic, and infinite. What problems does this raise for the task of converting goals into specific policy objectives?

12. The collection of information has its costs. For this reason the Commission on Federal Paperwork was established in 1975 to report on the value and burden of federal reporting requirements. To what extent should the collection of information be regarded as an "externality?"

13. List examples of problem types I, II, and III in policy analysis.

14. Provide examples of each of the ways to specify social welfare described in the text.

15. An objective function is a mathematical expression which shows the relation between an objective to be maximized and its components (the objective to be maximized is called maximand). The following maximand is based on the Pareto criterion:

    $\Delta W; \geq 0$,
    (W) of any individual (i) most be equal to or greater than zero (i.e., nobody loses)

    If the total income of the United States continues to increase at a rate of approximately 3.1 percent, and the Pareto Criterion is actually applied, what will the consequences be for the distribution of income in the country? [Hint: Think in terms of the cumulative distribution of income and a Lorenz curve]

16. List several examples of policy goals and policy objectives in areas of environmental policy, crime policy, or health policy.

17. Are constraints always an impediment to the making of "rational" policies? Provide examples. [Hint: Think in terms of public personnel policies, environmental policies, etc.]

18. What is the relation between constraints and the feasibility of policy recommendations?

19. List several examples of externalities in a policy issue-area of your choice.

20. How do various forecasting approaches (intuitive, theoretical, extrapolative) help in different ways to deal with problems of time in making policy recommendations?

21. Provide examples of recommendations made under conditions of risk and uncertainty.

SYSTEMATIC ANALYSIS: STRENGTHS AND LIMITATIONS

The use of systematic procedures for making policy recommendations, as stated in the introduction to this unit, can have a variety of positive effects on the resolution of policy problems. If the analyst is able to state preferences explicitly, it will be easier for the public to scrutinize public programs, since in this way the goals and objectives of policymakers become clear. Second, the careful consideration of alternative courses of action available to resolve a problem assists greatly in answering questions about what works best under different conditions. Lastly, systematic procedures for relating preferences to alternatives is the essence of informed choice, no matter how we might define "rationality." In other words, there are some compelling arguments which may be made in behalf of the systematic analysis of alternative courses of action.

The case for systematic analysis, however, should not be overstated, since there are many limitations associated with the use of such techniques as cost-benefit and cost-effectiveness analysis (Rivlin, 1971:56-60; Hinrichs and Taylor, 1972:13-15). Some of these limitations derive from the techniques themselves, while others stem from the ways in which techniques are used.

1. Mistaking output for impact. In measuring the objectives of public programs it is important to distinguish outputs (e.g., units of health care) from impacts (e.g., reduction of disease). To confuse outputs and impacts is to mistake mere activity with the achievement of goals.

2. Confusing instrumental and consummatory values. In setting objectives it is often the case that one end can also serve as a means to another end, which itself can be a means to another end, and so on. But there are certain kinds of objectives which are valued in and of themselves--i.e., they are not valued as "instruments," but as something to be "consumed" because of their intrinsic value. If, incidentally, such consummatory objectives (e.g., maintaining open democratic processes) also serve as a means to some other objective (e.g., efficiency), so much the better; but consummatory objectives such as democracy will nevertheless not be traded for efficiency. Hence, the analyst should recognize that the process of making recommendations may be more important than the recommendations themselves.

3. Mistaking methods for solutions. The use of particular methods of analysis can distort results of making it possible to accept only information that can be expressed quantitatively. A superficial precision attained by using quantitative techniques may result in the exclusion of factors or considerations (e.g., life satisfaction, happiness, justice, beauty) which are essential for recommending an appropriate solution.

4. Ignoring changes in objectives. The objectives of public policy are not static; through bargaining, conflict, and compromise objectives may be generated over time, debated, and redefined. The lack of precision of objectives may not always be a sign of confusion or inaction, but rather an indication of the vitality of policy processes.

5. Realizing multiple objectives. In a large number of cases public policy analysts seek to attain several objectives at the same time. There may be trade-offs between net efficiency, redistribution of income, and the maintenance of existing social institutions--as, for example, when a promising industrial development project is likely to benefit the wealthy more than the poor, whose local community will be shattered by the location of new factories. Similarly, "a high benefit-cost ratio on a bridge connecting two wealthy suburbs and financed by general sales tax revenues may not be directly comparable to a lower benefit-cost ratio on a bridge between two poor communities financed by a progressive income tax" (Hinrichs and Taylor, 1972:14).

6. Misapplication of economic logic. "Economists," it has been observed, "know the price of everything and the value of nothing." This statement points to the problem, frequently encountered in cost-benefit analysis, in which the easiest benefits to measure are increases in income. The use of income measures to evaluate the benefits of various kinds of social problems (e.g., health, welfare, pre-school education, employment) implies that the goal of increasing national income "is more important than good health or better education or the elimination of poverty, and that these other goals are legitimate only to the extent that they increase future income" (Rivlin, 1971:56).

7. Ignoring behavioral processes. The policy analyst, no matter how successful (s)he may be in estimating benefit-cost or cost-effectiveness ratios, may have little knowledge of the actual impact of programs on the behavior of targets. The calculation of costs and benefits of training programs for the unemployed, for example, may be based on very little information about how trainees will actually respond to training.

> For this reason numerous critics of cost-benefit analysis have proposed that systematic social experimentation be undertaken prior to committing large amounts of funds to programs whose behavioral consequences cannot be estimated through cost-benefit ratios. In other words, cost-benefit analysis is limited in its capacity to predict the future behavior of target populations as well as program administrators and staff.

This review of strengths and limitations of systematic procedures for making policy recommendations would be incomplete if it did not point out that recommendations, by their very nature, occur prior to policy action, yet there are many uncertainties associated with policy action, and it is clear that analysts cannot foresee all possible outcomes in advance. For this reason, increasing attention has been devoted to procedures for systematically monitoring and evaluating policies after they have been recommended. In the next unit we shall return to monitoring and evaluation as procedures which permit the analyst to compare forecasts and recommendations with the ongoing experience of policy formation and implementation.

22. Some commentators believe that procedures of policy recommendation are "ethically neutral." Considering the strengths and limitations of systematic procedures reviewed in the text, do you agree? Why? Why not?

23. "A question well-stated is a question half-answered." Discuss.

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ASSIGNMENTS

Think carefully about a public problem with which you are familiar. Write a short briefing paper (6-10 pages) which might be used as a basis for convincing policymakers that they should adopt a particular course of action. Include in your briefing paper a discussion of major analytic components (objectives, constraints, externalities, time, risk, uncertainty) of the problem. The most efficient way to write this paper is to consider the steps outlined in Figure 5-4 (but make sure to discuss each relevant component at each step). The organization of your paper should be based on the following headings:

I. The Policy Problem

II. Policy Goals and Objectives

III. The Target Population

IV. Policy Alternatives

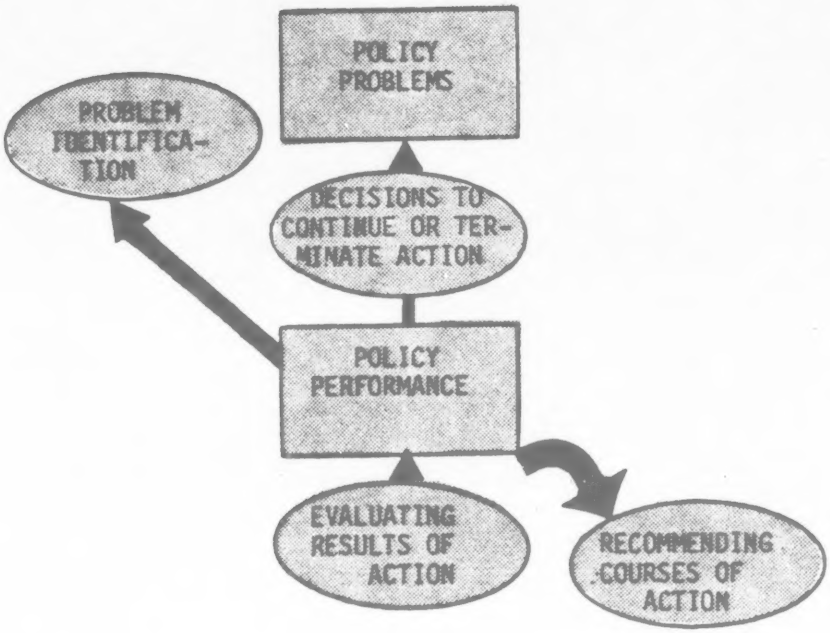
V. Comparison of Policy Alternatives

VI. Policy Recommendations

Finally, you should note that this assignment is not a difficult one, but it does call for some creativity in applying what you have learned so far to a problem of your choice.

UNIT 6

POLICY PERFORMANCE


POLICY PROBLEMS
PROBLEM IDENTIFICATION
DECISIONS TO CONTINUE OR TERMINATE ACTION
POLICY PERFORMANCE
EVALUATING RESULTS OF ACTION
RECOMMENDING COURSES OF ACTION

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INTRODUCTION

The ultimate aim of policy analysis is to provide valid information about the performance of policies--i.e., to evaluate policy outcomes so that we are able to tell whether needs and values have been satisfied through public action. No matter how "rational" a policy alternative may appear before action is taken, the ultimate test of a policy's performance is the degree to which policy outcomes evaluated after action is taken actually satisfy human needs and values.

The necessity of monitoring and evaluating the consequences of public action may seem obvious. Nevertheless, there are many cases of public policymaking where policy analysts place primary or exclusive reliance on methods of rational choice (i.e., recommendation), with little or no attention to methods for systematically generating experience in the course of policy implementation. In the words of one student of policy processes:

> One of the amazing weaknesses in much contemporary public policymaking is that there is no systematic learning from experience. Very few evaluations of the real outcome of complex issues are made, and there are even fewer on which improvements of future policymaking can be based . . . In spite of the common tendency to justify action in terms of "experience," the simple fact is that learning from experience is accidental and sporadic (Dror, 1968: 275).

The central argument of this unit is that the use of policy analytic procedures of monitoring and evaluation can improve information about policy performance and contribute to the development of policies which better satisfy human needs and values. Although the use of systematic monitoring and evaluation procedures does not guarantee better policymaking--and in fact may even confuse issues as much as it clarifies them (Jones, 1970: 110)--monitoring and evaluation are two of the essential procedures employed by policy analysts.

In this final unit we shall examine in greater depth: (1) the role of evaluation in providing information about policy performance; (2) selected approaches available to evaluate policy outcomes; and (3) strengths and limiatations of policy analysis as an intellectual activity which is embedded in social and political and technical information for policy development.

LEARNING OBJECTIVES

After completing this unit you should be able to:

1. Compare and contrast policy analytic procedures of monitoring and evaluation.
2. Define and characterize aspects of policy performance.
3. List the functions of evaluation in public policy analysis.
4. Distinguish the four main types of evaluation agents.
5. Identify major components of a general strategy of evaluation.
6. List the major requirements of program evaluation.
7. Identify three important sources of error which threaten the validity of information about policy performance.
8. Compare and contrast the four major approaches to evaluation.
9. Distinguish between the external and internal validity of results of experimantal evaluations.
10. Compare and contrast different types of policy cycles.
11. Identify major factors which influence the utilization of information about policy performance.

KEY TERMS AND CONCEPTS

- Monitoring
- Evaluation
- Policy Performance
- Evaluation Agent(s)
- Proximity
- Composition
- "Dilemma of Proximity"
- Level of Performance
- Scope of Performance
- Efficiency of Performance
- Policy Objectives
- Policy Preconditions
- Policy Actions
- Policy Events
- Policy Outputs
- Immediate and Secondary Impacts
- Intended and Unintended Impacts
- History
- Maturation
- Instability
- Formative Evaluation
- Summative Evaluation
- Direct (Experimental) Controls
- Indirect Controls
- Developmental Evaluation
- Experimental Evaluation
- Retrospective Process Evaluation
- Retrospective Outcome Evaluation
- Policy Cycles
- Information (Knowledge) Utilization

OVERVIEW

Objectives	Tasks	Resources	Evaluation
1. Compare and contrast policy analytic procedures of monitoring and evaluation.	Study Question 1	Unit Narrative	Self
2. Define and characterize aspects of policy performance.	Study Question 5	Unit Narrative	Self
3. List the functions of evaluation in public policy analysis.	Study Question 2	Unit Narrative	Self
4. Distinguish the four main types of evaluation agents.	Study Questions 3, 4	Unit Narrative	Self
5. Identify major components of a general strategy of evaluation.	Study Question 6	Unit Narrative	Self
6. List the major requirements of program evaluation.	Study Question 7	Unit Narrative	Self
7. Identify three important sources of error which threaten the validity of information about policy performance.	Study Question 8	Unit Narrative	Self

Objectives	Tasks	Resources	Evaluation
8. Compare and contrast the four major approaches to evaluation.	Study Questions 9, 10, 11, 12, 13	Unit Narrative	Self
9. Distinguish between the external and internal validity of results of experimental evaluations.	Study Questions 14, 15, 16	Unit Narrative	Self
10. Compare and contrast different types of policy cycles.	Study Question 17	Unit Narrative	Self
11. Identify major factors which influence the utilization of information about policy performance.	Study Questions 18, 19, 20, 21	Unit Narrative	Self

EVALUATION AND POLICY POLICY PERFORMANCE

When the policy analyst has successfully monitored the consequences of policy action s/he is in a position to evaluate policy outcomes. Monitoring, as we have seen, involves descriptions of present or past action--i.e., factual premises. Evaluation, by contrast, involves the application of certain standards of value to present or past action--i.e., value premises. Since all future consequences of public policies cannot be foreseen in advance, it is necessary to employ systematic procedures of monitoring and evaluation. Given that policy recommendations are subject to varying degrees of risk and uncertainty, some systematic procedure for determining policy performance must be employed in order to obtain information as to whether needs and values are being met through public action.

The term evaluation has several related meanings, each of which refers to the application of some standard or scale of values to outcomes of policy. Evaluation is synonymous with appraisal, rating, assessment, and judgment, words which denote attempts to apply some set of values to policy or program outcomes. When policy outcomes result in the achievement of objectives we say that some level of policy performance has been attained, which may also mean that policy problems have been resolved or at least ameliorated. For example, high policy performance may be present when target groups receive services (outputs) or when targets actually experience changes which are part of the objectives of a program (impacts). Such performance is evident when the sick and aged not only receive adequate health care, but also experience reduced rates of illness as a result of medical treatment.

Evaluation performs a number of essential functions in public policy analysis. Evaluation: (1) reveals the extent to which objectives have been attained; (2) explains why objectives were or were not attained and why problems were or were not resolved;* (3) identified discrepancies among different perceptions of needs and values; and (4) provides a basis for several kinds of decisions associated with policy development, including the identification of new problems and the continuation, termination, and adjustment of policies.

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*Strictly speaking, the explanation of policy processes is accomplished through monitoring (see Unit 3). At certain points, however, monitoring and evaluation overlap with one another, particularly since one is a prerequisite of the other. For this reason Caro (1971: 23) and others use the term "quasi-evaluation" to describe certain procedures which we have described as monitoring.

Criteria of evaluation may be formal, as in those cases where precise units of measurement (e.g., dollars) are used; but criteria may also be non-formal, as when general assessments (e.g., simple statements of relative worth) are made in written reports or the press. Finally, criteria may be of different types of rationality (economic, technical, legal, social, substantive). Thus, for example, the same Community Action Program may be evaluated in terms of criteria of economic efficiency (economic rationality), criteria related to the maintenance of democratic processes (social rationality), or both (substantive rationality).

Evaluation agents are the individual or corporate actors who actually engage in efforts to assess the performance of public policies and programs. Evaluation agents differ along two major dimensions: their proximity to processes and their composition. Evaluation agents who are closest to policy processes are usually internal to the organization in which policies are made (e.g., agency directors), as contrasted with external agents (e.g., journalists) who are not directly involved in policy formation. Likewise, some agents are individuals (e.g., congressmen), while others are so-called institutional actors, such as the General Accounting Office (GAO). Four types of evaluation agents are illustrated below (Table 6.1).

TABLE 6-1

Four Types of Evaluation Agents

	Proximity to Policy Process	
Composition	Internal	External
Individual	Agency Heads Members of Congress Agency Employees	Academic Researchers Journalists Citizens
Institutional Actor	Office of Agency Policy Analyst Presidential Commissions Office of Management and Budget (OMB)	University Research Groups Private Research Institutes Lobbies

Distinctions among types of evaluation agents are important for a number of reasons, all of which are connected with questions about the influence of evaluators in shaping policy formation. Internal evaluators, for example, may share one or more of the following advantages (Caro, 1971: 17; Williams and Elmore, 1976): (1) more thorough knowledge of the organization and its policies and programs; (2) an institutional base for continuous monitoring and evaluation activities; and (3) opportunities to influence policymaking directly, either as individual or institutional actors responsible for policy analysis activities within a given organization. On the other hand, external evaluators may possess advantages which internal evaluators do not share. External evaluators (1) are often able to maintain a greater degree of objectivity; (2) frequently employ criteria of evaluation which serve to question basic assumptions of policies; (3) are not so directly dependent on organizational resources to carry out their tasks; and (4) may have a more accurate picture of the values and needs of target groups than internal evaluation agents. There is, of course, a "dilemma of proximity" in what has been described above. Institutional actors who are most proximate to policy processes may be least capable of carrying out objective, critical, and constructive evaluations of public policies. Conversely, external evaluation agents may have more to contribute to the creative formation and adjustment of policies, yet lack influence precisely because they are not directly involved in policy processes.

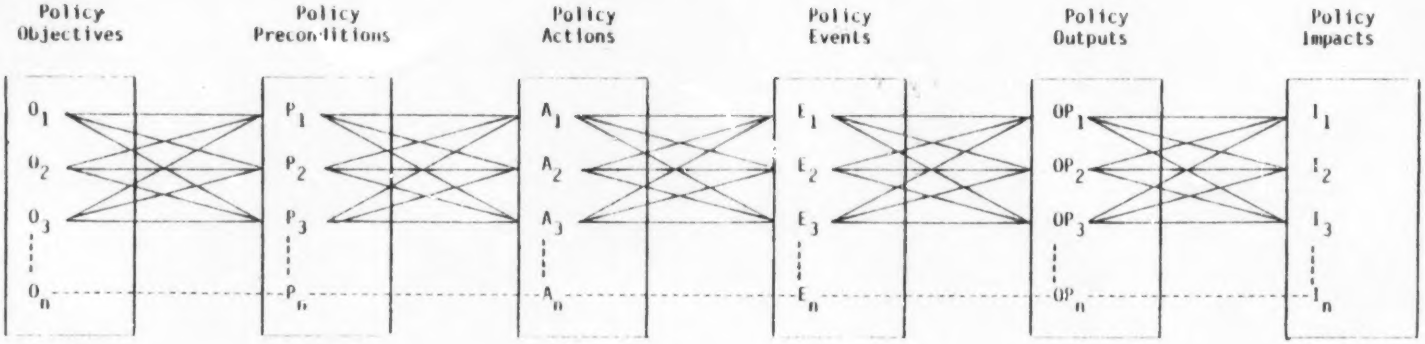
No matter how close or far away from policy processes are agents of evaluation, their primary aim is to provide information about policy performance. Policy performance refers to the degree to which policy outputs result in policy impacts. For example, if the improvement of health care for the aged is a policy objective, and the provision of low cost or free medical service is a policy output (measured in terms of units of treatment), then information about policy performance may be obtained by comparing outputs with impacts (measured in terms of the incidence of chronic diseases). In this context there are at least three major questions relevant to the determination of policy performance:

1. Level of Performance. How strong is the relationship between policy outputs and policy impact? For example, does the provision of medical services to the aged (outputs) result in a large, moderate, or small reduction in the incidence of chronic disease (impacts)?

2. Scope of Performance. Given any level of performance (high, moderate, low) how many persons in a target group in need of medical services actually receive and benefit from them? For example, is a reduction in the incidence of chronic disease experienced by all, most, or only a small portion of persons within a target group?

3. Efficiency of Performance. How much does it cost to provide a given level of performance? Are there alternate programs which can provide the same outputs and impacts at lower cost or with less effort? Do programs with higher levels of performance fail to produce comparable gains in the scope of performance? Are programs with the highest level and scope of performance more costly or less costly?

A general strategy of evaluation has at least six interrelated components (cf. Cook and Scioli, 1972; Suchman, 1967). These components and their interrelationships are illustrated below in Figure 6.1.


Policy Objectives
Policy Preconditions
Policy Actions
Policy Events
Policy Outputs
Policy Impacts
O_1
O_2
O_3
O_n
P_1
P_2
P_3
P_n
A_1
A_2
A_3
A_n
E_1
E_2
E_3
E_n
OP_1
OP_2
OP_3
OP_n
I_1
I_2
I_3
I_n

	Intended	Unintended
Immediate	(II)	(IV)
Secondary	(SI)	(SU)

NOTE: This figure shows that there are many combinations of separate components which can lead to policy impacts of different types.

FIGURE 6-1

Components of a General Evaluation
Strategy of Policy Analysis

1. Policy (Program) Objectives. This consists of defining operational indicators of the specific changes in policy environments that policies or programs are designed to produce. For example, increased access to outpatient care might be one of the operational indicators of objectives sought by a community health care program designed for low-income persons.

2. Policy (Program) Preconditions. This refers to the social, political, and economic conditions under which a given policy or program targets (e.g., average education, awareness of program) and policy actors (e.g., community leaders' support or opposition to the program in a given context have to operate).

3. Policy (Program) Actions. This component consists of inputs of expenditures, personnel, and equipment, as well as processes such as behavioral patterns of program staff, interactions with clients, and the authority structure (e.g., centralized vs. decentralized control) through which activities are carried out.

4. Policy (Program) Events. This component refers to events that may occur from the time at which policy action is initiated to the time at which monitoring and evaluation activities take place. Unforeseen events (e.g., a strike by public employees, a highly contested election, sudden reports of fraud and misuse of public funds) may intervene between policy actions and policy outputs and impacts, such that it is difficult or impossible to determine whether any given level or scope of performance is due to the policy or program, or to unanticipated events.

5. Policy (Program) Outputs. This component includes actual services or goods received by a target population as a result of policy actions undertaken over time. Policy outputs might include units of health service, hours of job counselling, units of dispensed medicine, and miles of paved streets.

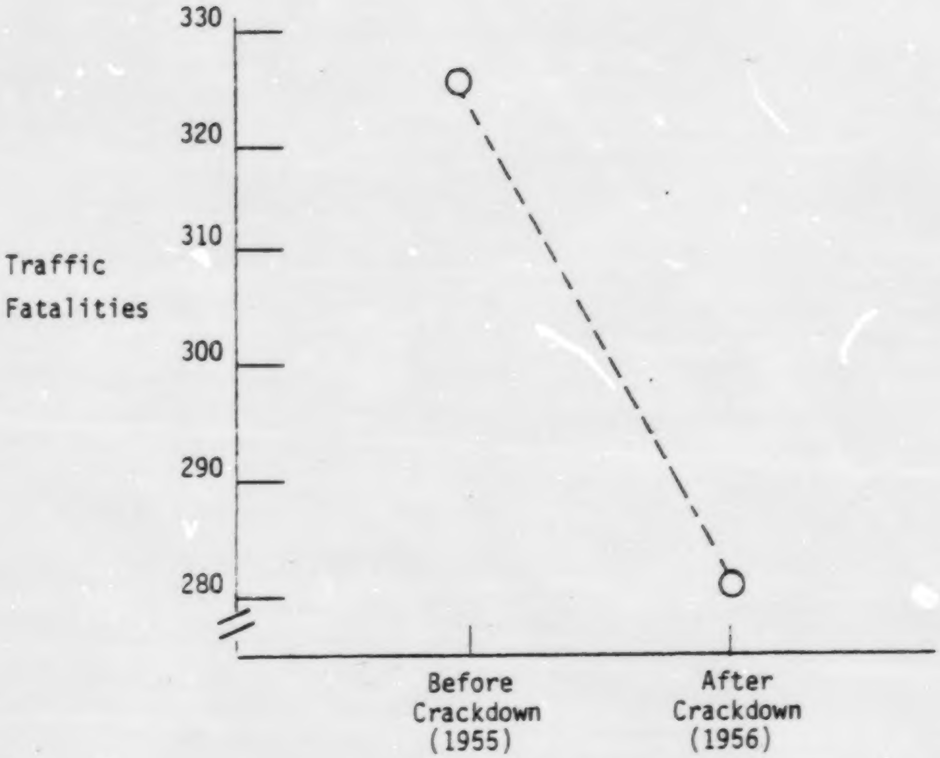
6. Policy (Program) Impacts. This component refers to the actual changes in the targets of policies and programs. Policy impacts might include rates of new employment, the incidence of illness, and reduction of car repairs and accidents. Policy impacts may be broken down according to time--i.e., some impacts are immediate (e.g., improved health care) and some are secondary (e.g., increased productivity due to improved health care). Further, policy impacts may be analyzed in terms of predictability--i.e., some impacts are intended (e.g., productivity resulting from health care) and others are unintended (e.g., increased passenger loads on municipal buses due to a healthier and more active population).

The purpose of making these interrelated components explicit is to emphasize the essential difficulty in employing procedures of evaluation to determine policy performance: The possible consequences of policy action are complex, many-sided, and difficult to assess--they are by no means self-evident. For this reason various components cannot be viewed separately, but must be analyzed as interdependent parts of an entire network of relationships (see Figure 6.1 above).

The evaluation of policies and programs occurs after particular actions have been undertaken. The requirements of policy-program evaluation, however, are similar in most respects to those questions asked by policy analysts in making policy recommendations (see Unit 5).

The main difference is one of time--recommendation involves statements about the future, while evaluation involves statements about the past and present (see Unit 1, Figures 1.9 and 1.10).

Errors in the interpretation of public policies can be best illustrated by Campbell's (1969) analysis of a 1955 crackdown on speeding in the state of Connecticut. A record high of traffic fatalities in 1955 prompted then-Governor Abraham Ribicoff to formulate a new law enforcement policy providing for a severe crackdown on speeders. One year after the new policy had been in force there were 284 traffic deaths, as compared with 324 in the previous year. Interpreting the performance of this new policy Governor Ribicoff announced: "With the saving of 40 lives in 1956, a reduction of 12.3% from the 1955 motor vehicle death toll, we can say that the program is definitely worthwhile." These results are displayed below in Graph 6.1.



GRAPH 6-1

Difference in Traffic Fatalities Before And After New Law Enforcement Policy

SOURCE: Campbell (1969)

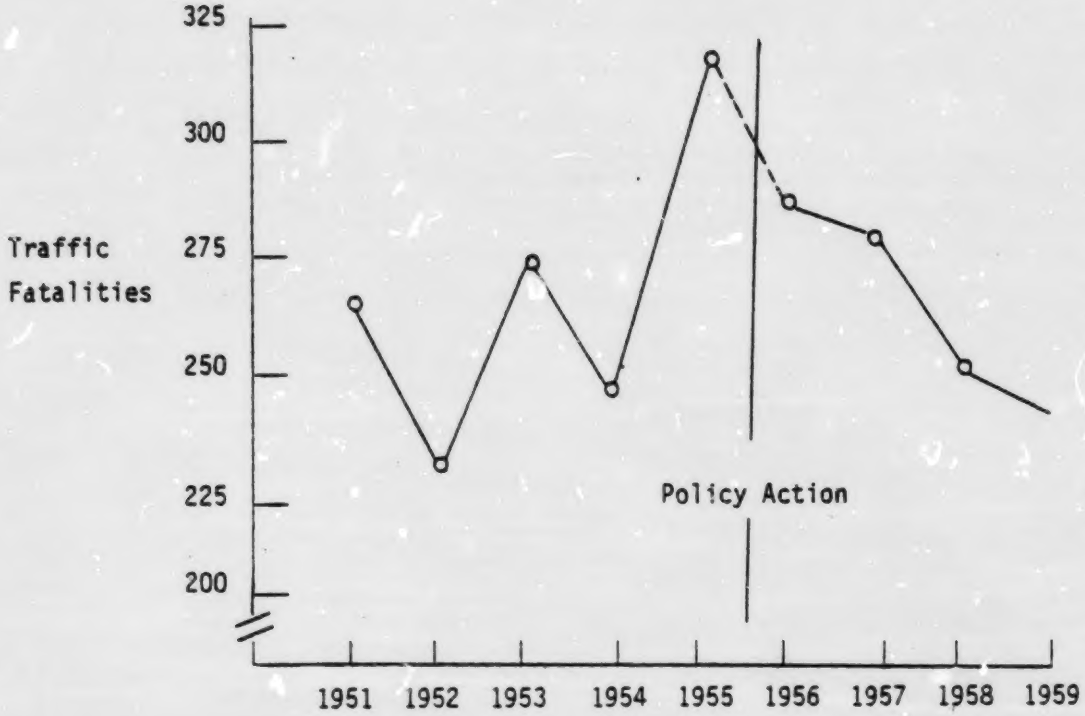
There appear to have been some beneficial consequences of the 1955 policy. Nevertheless, the Governor's interpretation of policy performance failed to take into account several important sources of error which threaten the validity of interpretations:

1. History. A number of events can occur between the time a policy is instituted and the point at which outcomes are measured. In the case of the 1955 policy these events might include usually favorable weather conditions (e.g., little rain or snow) and more extensive use of auto safety devices (e.g., seat belts). Each of these events represents a plausible rival interpretation of the causes of the 12.3 percent reduction in fatalities.

2. *Maturation*. Changes over time in the characteristics of a target population might also account for observed differences before and after a policy. In this case drivers might well have "matured," in the sense of becoming more cautious and responsible, perhaps as a long-term consequence of driver education in schools and public information provided by the mass media.

3. *Instability*. Changes in a target population or policy environment might be irregular and unstable, rather than smoothe and continuous, as in secular trends (see Unit [illegible]). Time series are often unstable, and the degree of instability in this case might well invalidate interpretations of policy performance.

The same data from Graph 6.1 has been displayed below as part of our extended time series (Graph 6.2). The presentation of this new data compels us to reinterpret the 1955 Connecticut law enforcement policy and its claimed high level of performance. First, there are many events which may have occurred in the *history* of implementing the policy, each of which could invalidate assessments of performance. We could analyze weather information and seat belt sales, for example, so as to determine whether there were significant changes over time. Second, target groups may well have *matured* as a result of public educational programs, although the collection of such information presents real difficulties. Nevertheless, we can still speculate on the effects of maturation, given that death rates are in fact going down year after year, relative to the number of automobiles and miles driven. Finally, the changes in death rates between 1955 and 1956 may be part of an instable time series. In this case we do in fact find very pronounced irregularities over the period of 1951-59, suggesting that the actual consequences of the 1955 policy were relatively unimportant or trivial. The data in Graph 6.2 illustrates that the Governor's assessment of policy performance was prone to errors of interpretation.



GRAPH 6-2

Differences in Traffic Fatalities Before
And After New Law Enforcement Policy:
Extended Time Series Data

SOURCE: Adapted from Campbell (1969).

STUDY QUESTIONS

1. Compare and contrast monitoring and evaluation in terms of time and the nature of statements produced by each procedure.

2. List the major functions of evaluation in public policy analysis and provide illustrations of each.

3. What is the "dilemma of proximity" and how might it be resolved through new organizational arrangements?

4. How are the four types of evaluation agents related to the dilemma of proximity?

5. "If the level of performance of a given policy is high, then it is safe to assume that its scope and efficiency of performance are also high." Is this statement a valid one? Why? Why not?

6. How many different combinations of elements of components listed in Figure 6.1 are possible? Note that the first component (Policy Objectives) has three elements (O_1, O_2, O_3). [Hint: Multiply the number of elements in the first component by elements in all the remaining components]. If each of the elements listed under Policy Impacts is divided into four subtypes, as in Figure 6.1, how many combinations will there be? [Answers: 729, 2916]

7. What are the main similarities and differences between tasks necessary for making policy recommendations (Unit 5) and major requirements of program evaluation?

8. Recent reports have emphasized that the enforcement of federal environmental protection legislation, while less than totally successful, has nonetheless resulted in reasonably adequate levels of performance. Given that one of the major objectives of such policies is to reduce the volume of pollutants produced by industry, which of the threats to the interpretation of policy performance (history, maturation, instability) might result in a reinterpretation of policy performance? Illustrate your answer.

APPROACHES TO EVALUATION

Components in our general strategy of evaluation are present in one form or another in most analyses of public policy. At the same time there are several different approaches to evaluation, each of which varies along two specific dimensions. The first dimension is represented by orientations toward policy processes: evaluations may be formative or summative. In formative evaluations, program implementation and the monitoring of policy actions take place concurrently, as contrasted with summative evaluations where monitoring and evaluation activities are carried out at a specified point in time after programs are in force.

To some extent this contrast is artificial, since the main distinguishing characteristic of formative evaluation is the number of evaluation points between the initiation of a program and its outcomes. Hence, summative evaluation may be regarded as a special case of formative evaluation--i.e., a case involving one point of time.

The second dimension is the nature of controls over policy action: evaluations may involve direct controls over manipulable policy inputs and processes, as distinguished from indirect controls in the form of statistical analyses of relations between policy actions and outcomes which have already occurred. In the former case, evaluators can directly manipulate expenditure levels, the mix of programs, and the characteristics of staff and target groups--i.e., the evaluation sometimes has characteristics of a "controlled experiment." In the latter case, however, policy actions cannot be manipulated directly; rather they must be analyzed retrospectively on the basis of actions that have already occurred. Four major approaches to evaluation--each are based on a combination of these two dimensions--are illustrated below in Table 6.2.

TABLE 6.2

Four Approaches to Evaluation

Controls Over Policy Actions	Orientation Toward Policy Processes	
	Formative	Summative
Direct	Developmental evaluation (Educational Testing: *Sesame Street*, *Electric Company*)	Experimental evaluation (New Jersey-Pennsylvania Income Maintenance Experiment)
Indirect	Retropsective Process evaluation (Title I of the Elementary and Secondary Education Act)	Retrospective Outcome evaluation (The Coleman Report)

Developmental evaluation refers to evaluation activities which are explicitly designed to serve the day-to-day needs of program staff. Developmental evaluation is useful "for alerting the staff to incipient weaknesses or unintended failures of a program and for insuring proper operation by those responsible for its operation" (Rossi and Wright, 1977: 21). Developmental evaluation, which involves some measure of direct control over policy actions, has been used in a wide variety of situations in the public and private sectors. Thus, for example, businesses have traditionally used developmental evaluations to distribute, test, and recall new products. In the public sector developmental evaluations are frequently used to test new teaching methods and materials in public education programs, such as Sesame Street and Electric Company. Such programs are systematically monitored and evaluated while shown to audiences of children within specified age limits. Subsequently, they are "revised many times on the basis of systematic observations of which program features achieved attention and on the basis of interviews with the children after viewing the programs" (Rossi and Wright, 1977: 22). Developmental evaluations, since they permit direct control over policy actions, can be used to adapt to new experience acquired through systematic manipulations of input and process variables.

Retrospective process evaluation involves the monitoring and evaluation of programs after they have been instituted. Retrospective process evaluation, which often focuses on problems and bottlenecks encountered in the implementation of policies and programs, does not permit the direct manipulation of inputs (e.g., expenditures) and processes (e.g., alternative delivery systems). Rather it relies on ex post facto (retrospective) descriptions of ongoing program activities, which are subsequently related to outputs and impacts. Retrospective process evaluation requires a well established internal reporting system which permits the continuous generation of program-related information(e.g., the number of target groups served, the types of services provided, and the characteristics of personnel employed to staff programs). Management information systems (MIS) in public agencies sometimes permit retrospective process evaluations, provided they contain information on processes as well as outcomes. Title I of the Elementary and Secondary Education Act (1965) was subjected to a form of retrospective process evaluation by the office of Education, but with disappointing results. Title I provided funds to local school systems in proportion to the number of pupils from poor or deprived families. Local school districts, however, submitted inadequate or marginally useful information, thus making it impossible to engage in efforts to evaluate and implement programs concurrently. The main problem with retrospective process evaluations is that they presuppose a reliable and valid information system, which is difficult to establish.

Experimental evaluation refers to the evaluation of outcomes of policies and programs under conditions of direct controls over policy inputs and processes. The model for experimental evaluation has generally been the "controlled scientific experiment," which several notable academic and government spokesmen have urged be adopted in policy settings (e.g., Campbell, 1969; Rivlin, 1971; Fairweather, 1967). The basic idea of experimental evaluation is that all factors which might influence policy outcomes except one--i.e., a particular input or process--are controlled or held constant (i.e., they exert no effects on policy outcomes).* A substantial number of experimental evaluations have been carried out as part of public policymaking efforts. These include the New Jersey-Pennsylvania Income Maintenance Experiment; the California Group Therapy-Criminal Recidivism Experiment; the Kansas City Preventive Patrol Experiment; Project Follow Through; the Supported Work Demonstration Project; and various experiments in educational performance contracting (cf. Rossi and Wright, 1977).

Experimental evaluations must meet rather severe requirements before they can be carried out (cf. Williams, 1971: 93): (1) a clearly defined and directly manipulable set of "treatment" (i.e., input and process) variables which are specified in operational terms; (2) an evaluation strategy which permits maximum generalizability of conclusions about performance to many similar target groups or settings (external validity); (3) an evaluation strategy which will likewise permit minimum errors in interpreting policy performance as the actual result of manipulated policy inputs and processes (internal validity); and (4) a monitoring system which produces reliable data that can be used to measure complex interrelationships among objectives, preconditions, actions, events, outputs, and impacts (see Figure 6.1 above). Since these demanding methodological requirements cannot always be met, experimental evaluations fall somewhat short of the "true" controlled experiment. In addition, experiments with human subjects sometimes raise ethical issues which make experimental evaluations infeasible or simply undesirable.

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*Experimental evaluations include various distinctions (e.g., "quasi-experimental" and "pre-experimental" evaluations), depending on the number and types of input and process variables included in the analysis and on the degree to which target groups or situations are selected randomly (i.e., according to the rule that every target has an equal chance of being selected). See Riechen and Barouch (1974) and Guttentag and Struening (1975) for a fuller elaboration of differences.

Retrospective outcome evaluations also involve the monitoring and evaluation of outcomes, but with no direct control over manipulable policy inputs and processes.* At best controls are indirect or "statistical"--i.e., the evaluator attempts to isolate the effects of many different factors by using advanced quantitative methods. In general, there are two main variants of retrospective process evaluations: cross-sectional and longitudinal studies. Longitudinal studies are those which evaluate changes in the outcomes of one, several, or many programs at two or more points in time; before-and-after studies typically use two points in time, as contrasted with time-series analysis (see Unit 3), which uses multiple points in time as a basis for evaluation. The most frequent longitudinal studies have occurred in the area of family planning, where fertility rates and changes in the acceptance of contraceptive devices are monitored and evaluated over reasonably long periods of time (5-20 years). Cross-sectional studies, by contrast, seek to monitor and evaluate multiple programs at one point in time--i.e., after a policy or program has been implemented. The major goal of the cross-sectional study is to discover whether the outputs and impacts of various programs are significantly different from one another; and, if so, what particular actions, preconditions, or events might explain the difference. Two prominent examples of retrospective outcome evaluations that are cross-sectional in nature are Project Head Start, a program designed to provide compensatory education to pre-school children, and the Coleman Report (see Unit 1). Indeed, "almost every evaluation of the national compensatory education programs started during the middle 1960s has been based on cross-sectional data. Pupils enrolled in compensatory education programs were contrasted to those who were not, holding constant statistically such sources of competing explanations as family background, ethnicity, region, city size, and so on" (Rossi and Wright, 1977: 27).

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*Note that three of the approaches to monitoring discussed in Unit 3--i.e., social accounting, social auditing, and social research cumulation--may also be considered as forms of retrospective outcome evaluation, provided they go beyond descriptions and actually apply standards of value to monitored outcomes. Similarly, cost-benefit analysis (see Unit 5) may also be viewed as a form of retrospective outcome evaluation, as well as a systematic procedure for policy recommendation.

STUDY QUESTIONS

9. What is the main distinguishing characteristic of formative evaluations, as compared with summative ones?

10. Why are formative evaluations also called "process," "concurrent," or "developmental" evaluations?

11. An "experimental treatment" is a policy input or process which can be manipulated directly by policymakers. How would you describe a "non-experimental treatment?"

12. What is the role of time in determining the choice of an approach to evaluation?

13. Which of the four major approaches to evaluation is probably of most direct utility to policymakers in highly complex and rapidly changing policy environments?

14. What is the difference between internal and external validity? Why are questions of internal and external validity important for public policymakers?

15. As a policymaker concerned with the development of the most cost-effective health care delivery programs, you have just received a report that a field experiment in Pennsylvania produced remarkable changes in the improvement of health care. Assuming that you are confident that this high performance is actually the result of the experimental program--and given that your interest is in developing a national system of health care delivery--which of the two types of validity would be of immelate concern?

16. Which of the four main approaches to evaluation is most appropriate for determining the economic and technical rationality of a policy or program? Which is most appropriate for determining social rationality? Substantive rationality? (Note: You may wish to review Unit 1)

INFORMATION UTILIZATION AND POLICY DEVELOPMENT

Although the ultimate aim of the policy analyst is to provide valid information about policy performance, the question still arises as to how such information is actually utilized by policymakers. Policy-analytic procedures of evaluation play a key role in transforming information about policy outcomes into knowledge that tells us whether needs and values are being satisfied through public action. Nevertheless, it is not enough simply to provide information; information must also be utilized for purposes of making policies which actually contribute to the resolution of public problems.

Let us now return to several distinctions considered in the first unit--i.e., distinctions between policy analysis, policy formation, and policy processes. Policy analysis, as we have seen, is a rational intellectual activity which employs multiple methods to monitor, forecast, recommend, and evaluate public policies. Policy formation, by contrast, is a rational intellectual activity embedded in a dynamic social, political, and organizational environment. The process of formulating and implementing policies thus includes: (1) intellectual activities of problem identification, monitoring, forecasting, recommendation, and evaluation--i.e., policy-analytic procedures which generate various types of information; (2) managerial activities associated with the formulation and implementation of policies through planning, staffing, organizing, controlling, and directing operations in the pursuit of organizational objectives; and (3) sociopolitical activities associated with negotiation, persuasion, bargaining, compromise, and conflict, each of which promotes changes in policies over time. In other words, policy-analytic procedures are always applied in contexts where the utilization of information is significantly shaped by factors which are organizational, social, and political, and not merely methodological or technical in nature.

There are at least four potential ways that information about policy performance may be utilized for purposes of developing new or better policies. Information about policy performance may be utilized such that:

1. A given policy may be adjusted to new conditions experimentally through monitoring and evaluation. This kind of policy adjustment cycle which results

in revised recommendations, is evident in a broad range of public policies which are modified over time by making budgetary shifts from one program category to another, or by making marginal increases (or decreases) in total budgets.

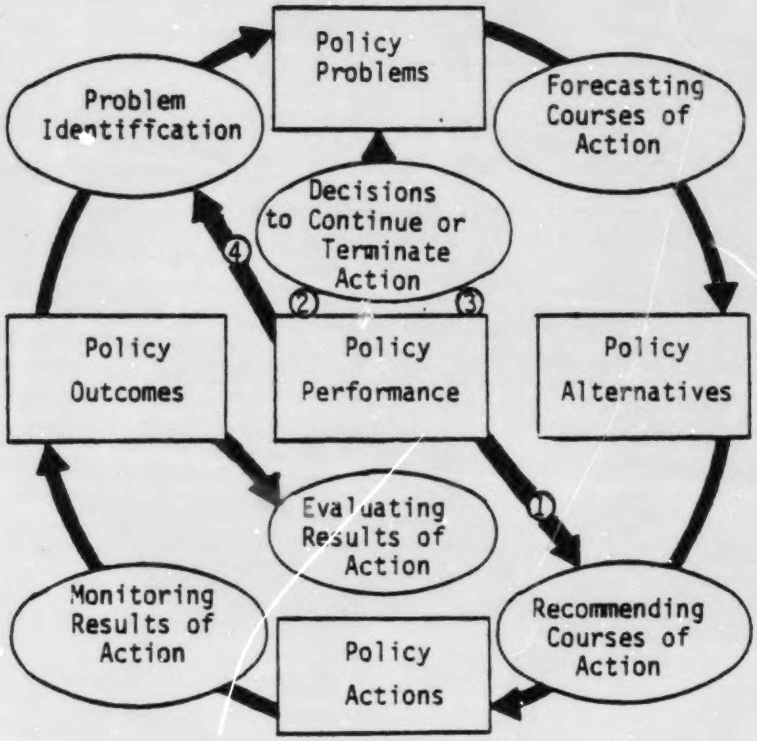
2. Policies may also be continued without modification as a result of information that objectives are being successfully attained. This kind of policy support or continuation cycle is evident in programs where minimal objectives are attained, but with no significant modification in target groups, types of programs, or personnel.

3. Policies may also be terminated altogether, either because of information that the original problem was solved, or because the policy created more problems than it resolved. Such termination cycles are rare, although the repeal of legal prohibitions against the sale and consumption of alcoholic beverages in the 1930s provides one leading example of a termination cycle.

4. Finally, information about policy performance may result in the identification of new policy problems. Here an entirely new set of objectives and alternatives may be part of a new problem identification cycle. Perhaps the best illustration of identification cycles comes from the area of housing policy. A study carried out by the Rand Corporation in the middle 1960s was originally intended to evaluate and make recommendations on the costs and benefits of new housing units. By the time the evaluation was finished, however, the original problem (creating new housing units) was discarded in favor of a new one: how best to upgrade the quality of existing units through federal and state subsidies to landlords.

FIGURE 6.2

Policy Cycles


Policy Problems
Problem Identification
Forecasting Courses of Action
Decisions to Continue or Terminate Action
④
②
③
Policy Outcomes
Policy Performance
Policy Alternatives
①
Evaluating Results of Action
Monitoring Results of Action
Policy Actions
Recommending Courses of Action

① Adjustment Cycle

② Continuation Cycle

③ Termination Cycle

④ Identification Cycle

These four types of policy cycles are illustrated above in Figure 6.2. The particular type of cycle evident in any particular case will depend in large part on the degree to which information about policy performance has been utilized by policymakers. For example, policymakers may accept or reject information which indicates that a policy should be adjusted to new circumstances, or terminated altogether. This may occur despite the fact that performance might be improved through adaptations.

This failure to utilize information provided by external and internal evaluation agents, who might be either individuals or institutional actors, is one of the major problems of policy development in modern public organizations.

A number of important factors influence the utilization of information (policy informational components) acquired through the application of particular methods (policy analytic procedures) in policy settings. Following our conception of policy formation and implementation as a process composed of intellectual, managerial, and sociopolitical activities, factors which influence the utilization of information may be divided into several broad types which involve: (1) the specification of objectives; (2) the selection of appropriate approaches to evaluation; (3) political feasibility; (4) time constraints; (5) the distribution of political influence; (6) the form and content of information; and (7) the characteristics of policymakers.

1. Specification of Objectives. The major problems of evaluating policy outputs and impacts are "vague goals, strong promises, and weak effects" (Rossi and Wright, 1977: 9). Very often the absence of consensus on clearly defined goals and objectives results in a dismissal of information about policy performance. Advocates of various social programs established in the late 1960s, for example, often set forth strong claims that vaguely defined programs would be (or were) effective in resolving problems of illiteracy, unemployment, poverty, and social inequality. This combination of strong promises and ambiguous goals contains the major implications: first, the demonstrated consequences of policy actions are likely to be weaker than advocates claims; second, any procedure for monitoring and evaluating policy and program outcomes must be highly sensitive to small changes in outputs and impacts (Rossi and Wright, 1977: 10). Small or marginal changes in outputs and impacts may be very important: a reduction of the unemployment rate by 0.1 percent will affect some 80,000 persons; a change of one or two points in the Gini Index of Inequality may mean that thousands of families in lower income groups will be able to meet their basic needs; a small change in treated illnesses may result in tens of thousands of dollars of new income through more productive employment. The specification of objectives (e.g., a 1.5 percent change in unemployment rates) provides the major standard of value or need against which policy outcomes are evaluated. Objectives must not only be clearly specified; they must also be partially acceptable to policymakers. Sometimes, while defining objectives in operational terms, internal or external evaluators (but especially the latter) depart from definitions held by policymakers. In doing so they risk the alienation and opposition of key decisionmakers and other influential parties.

2. Selection of Appropriate Approaches. Selecting the appropriate approach to evaluation (e.g., retrospective versus experimental or developmental evaluations) may be critical for detecting small but important changes in policy outcomes. Conversely, the approach to evaluation may also be essential for detecting large but unimportant changes, as we saw above in the time series analysis of law enforcement policies in Connecticut (Graphs 6.1 and 6.2). Nevertheless, if a particular approach to evaluation fails to produce information consistent with that of policymakers, valid results may be rejected by program advocates on the claim that some other approach was more appropriate. In this context it is important to note that strategies of monitoring and evaluation which are dynamic or process-oriented--i.e., those which parallel in important ways many of the characteristics of developmental evaluation--appear to result in greater utilization of information than static or outcome-oriented strategies (van de Vall and Bolas, 1975).

3. Political Feasibility. Irrespective of their methodological strengths and limitations, different approaches to evaluation may lack political feasibility. In other words, technical or methodological issues are often also political ones. Thus, for example, developmental and experimental evaluations cannot be used with programs that are already established and running, since it is usually not possible to devise new alternatives over which there is direct control in the middle of a program's implementation. Further, developmental and experimental evaluations typically seek to withhold "treatment" (e.g., social services) from a control group (e.g., groups of a target population with particular characteristics). This raises political and ethical questions which may well make retrospective evaluation the only acceptable course of action, despite the fact that it may be inappropriate from a methodological point of view.

4. Time Constraints. Thorough and systematic evaluations may require years of effort. At the same time policymakers typically require that information about policy performance be made available within much shorter periods of time, usually within one year or less because of annual budget preparations. Time constraints, together with problems of political feasibility, may require a less than appropriate approach to evaluation. For example, a simple before-and-after retrospective outcome evaluation might be employed instead of a time series analysis (see Graphs 6.1 and 6.2), with predictable results in the form of threats to the internal and/or external validity of information about policy performance.

5. Distribution of Political Influence. Even where information about policy performance is highly valid, and the choice of an evaluation approach optimal, there are important political obstacles to the utilization of information. The author of the well-known Coleman Report, for example, has generalized the importance of political factors in obstructing the utilization of information about policy outcomes (Coleman, 1974). First: "the greater the lateral distance between the problem-formulator and the decision maker, the more likely the research results will be irrelvant to the decision maker's problem." Second: "Research results seldom travel a greater distance up an authority system than the point at which the problem was originally formulated." While these generalizations are primarily applicable to external evaluation agents, especially university-based social scientists working under contract with government agencies, they appear to have more widespread applicability to relationships between policymakers and each of the four types of evaluation agents (see Table 6.1).

6. Form and Content of Information. The form and content of information about policy performance can also exert a decisive influence on the degree to which results will be utilized (van de Vall and Bolas, 1975). Thus, for example, it has been found that the longer evaluation reports are the less likely that their contents will be utilized by policymakers; an optimal length appears to approach fifty pages. Second, the use of terms and concepts with a minimal level of abstraction (from the point of view of policymakers) is associated with greater utilization of information about policy performance.

7. Characteristics of Policymakers. A recent study of the utilization of social science knowledge by policymakers at the national level suggests that there are several minimal conditions that must be present before information utilization will take place (Caplan et al. 1975). First, policymakers must have a reasoned appreciation of the scientific and extra-scientific aspects of a policy problem. In this context policymakers trained in law show less appreciation for scientific results, and hence lower levels of utilization, than policymakers trained in medicine and the social and natural sciences. Second, the ethical and scientific values of policymakers must reflect a sense of purposiveness and social responsibility, as evidenced in a sensitivity to contemporary events and a desire for social reform. Third, from the viewpoint of policymakers information must conform to intuitive understandings of problems and their solutions; be perceived as objective in nature; and must suggest policy actions that are deemed to be

> politically feasible. Finally, the utilization of information occurs more frequently when policymakers and agents of evaluation are linked by information specialists who can convert results of monitoring and evaluation into policy goals and objectives.

In conclusion, let us return to an idea with which we began our examination of public policy analysis (Unit 1): The process of policy formation and implementation cannot be adequately represented as one which is or ought to be universally reliant on methods of rational choice (recommendation). Public policy analysis, properly understood, places equal reliance on methods of rational choice as well as methods of generating new experiences in the course of action. Some policy analytic procedures are primarily useful as means for generating new experience through problem identification, monitoring, and evaluation; others are important because they permit us to apply experience in the form of forecasts and recommendations. The use of all these policy analytic procedures as part of a dynamic strategy of public policy analysis is what is meant by a dialectical mode of rational choice. This dialectical mode is well-suited to problems which involve different conceptions of rationality (economic, technical, legal, social, and substantive); it also contrasts sharply with descriptive, prescriptive, and authoritarian modes, each of which has severe disabilities. Public policy analysis, conceived as a dialectical effort which employs multiple methods of inquiry, can vastly expand information about policy processes in postindustrial policy environments. Potentially, at least, it can also give us a better idea of how to convert knowledge into public actions which will better satisfy human needs and values.

STUDY QUESTIONS

17. Provide illustrations from your own experience of each of the four types of policy cycles.

18. Policy problems are subjective, artificial, dynamic, interdependent, and infinite (see Unit 2). What problems does this raise for the specification of objectives with which to evaluate policy performance?

19. Imagine yourself in the role of an external evaluator. What steps would you take to overcome each of the obstacles to utilization discussed in the text?

20. Consider the following statement: "Theory without action is sterile; action without theory is purposeless." What are the implications of this statement for public policy analysis?

21. "Policy analysts have only interpreted the world; the real task is to change it." How does this statement relate to problems of information utilization?

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